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FIG. 1

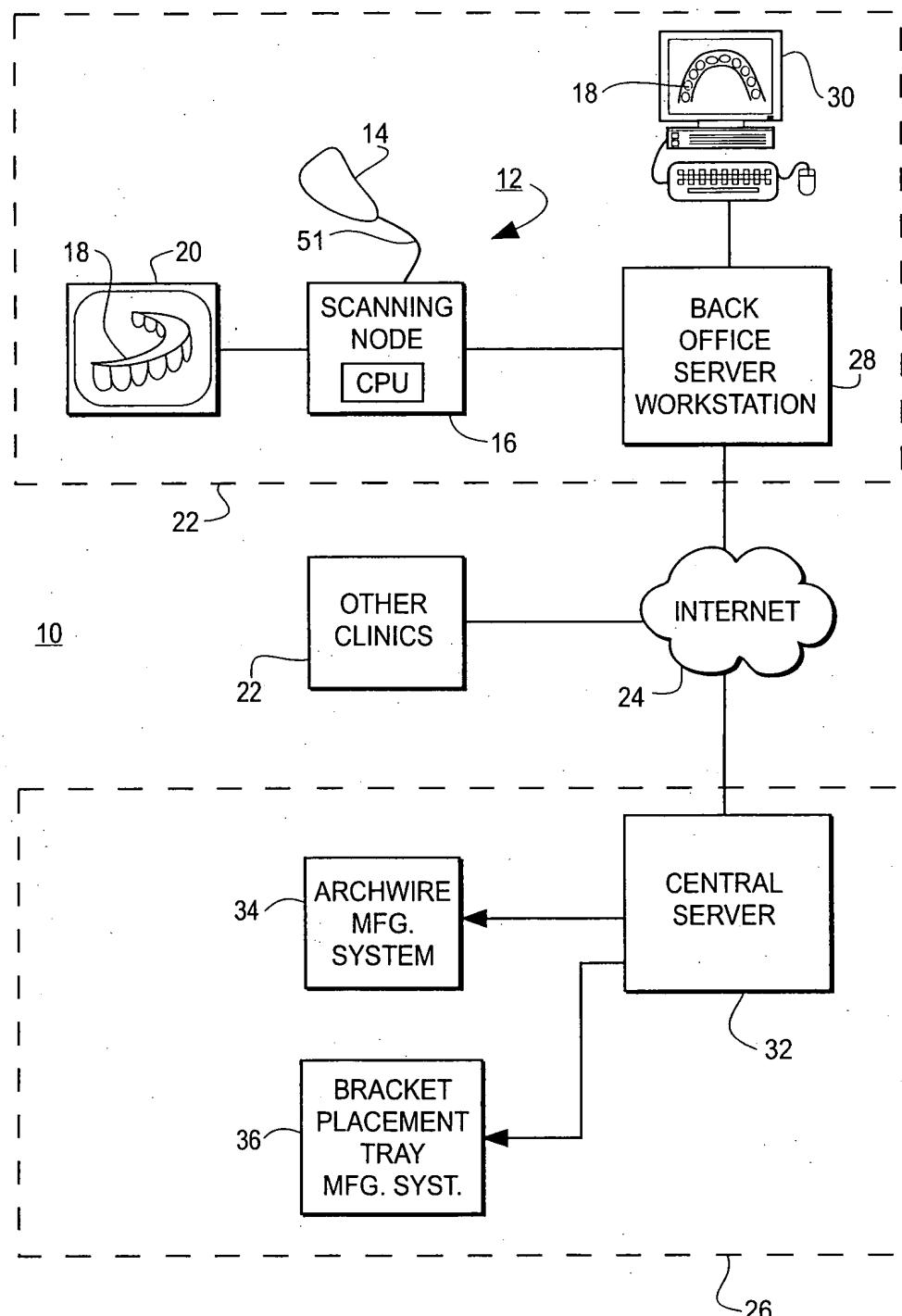


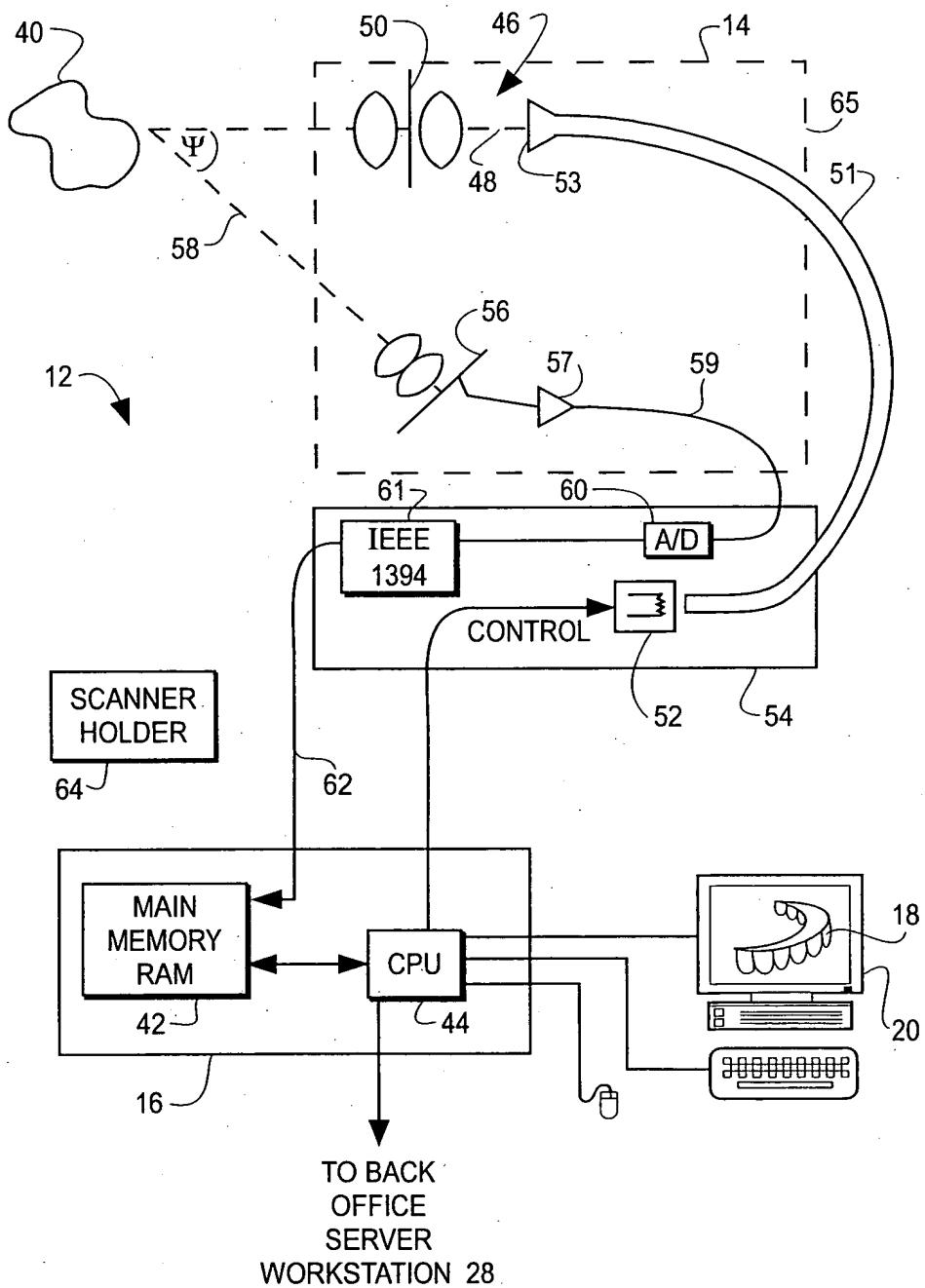
FIG. 2

FIG. 3

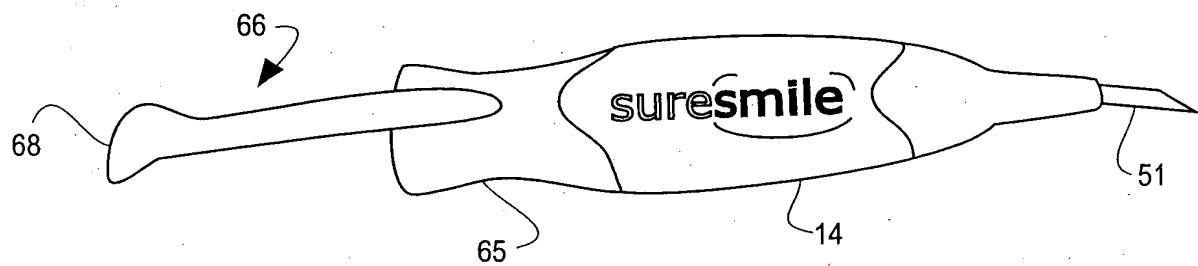


FIG. 4

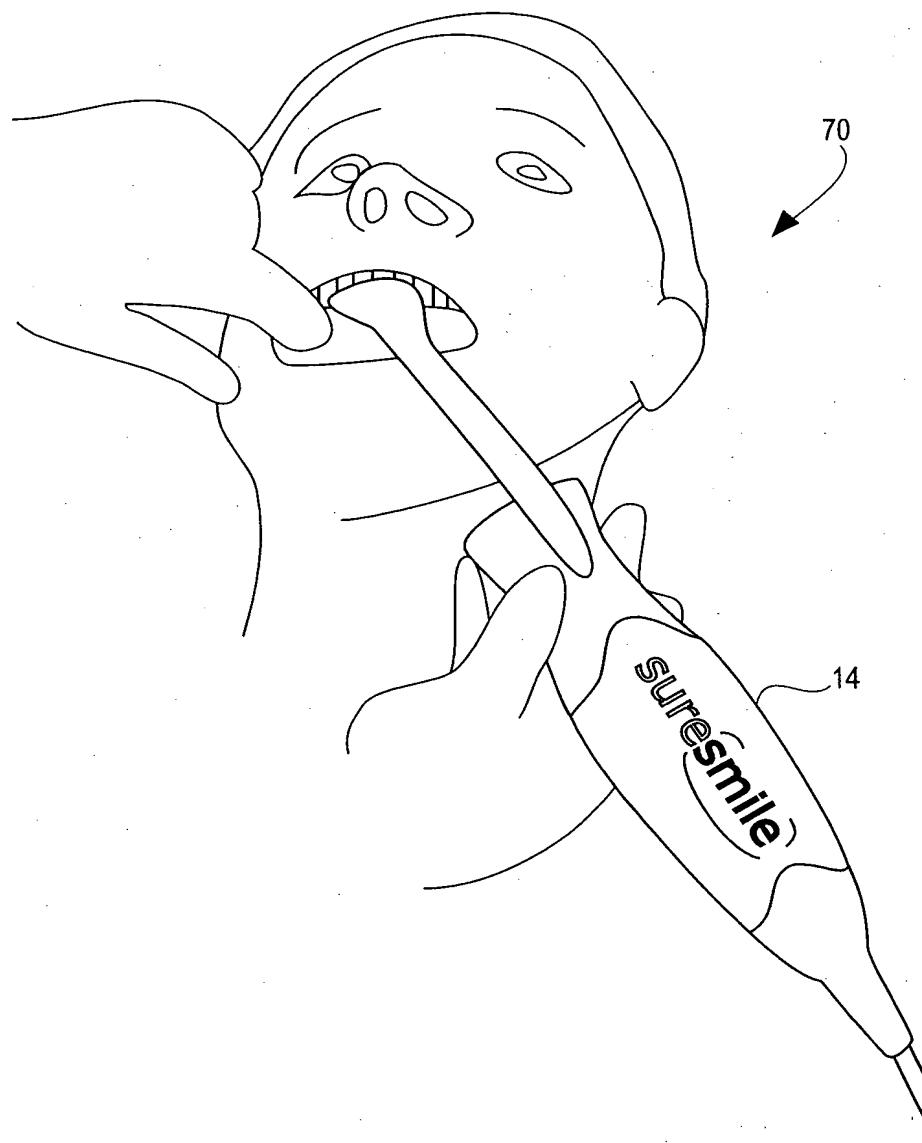


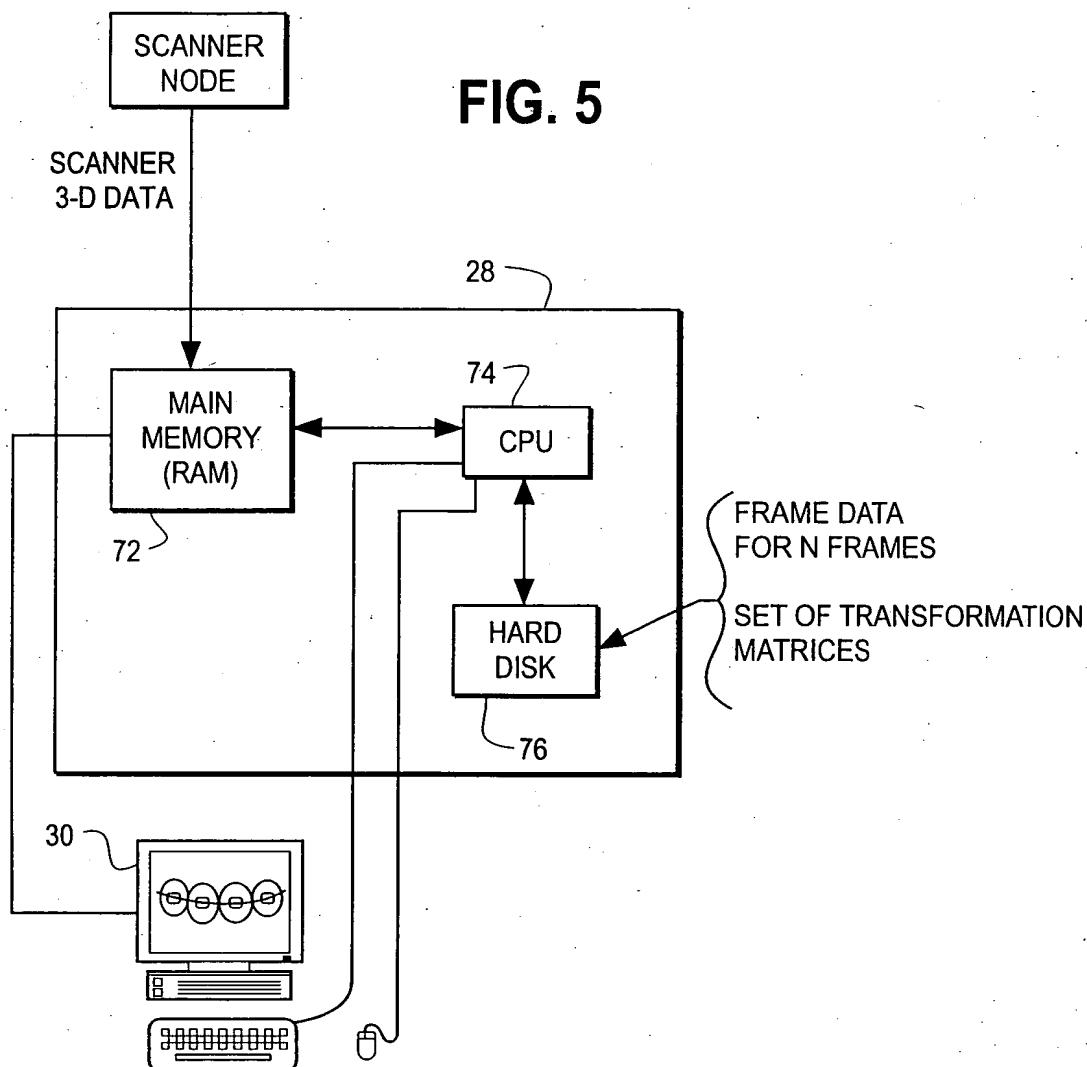
FIG. 5

FIG. 6

3- DIMENSIONAL IMAGE CAPTURE
(PER FRAME)

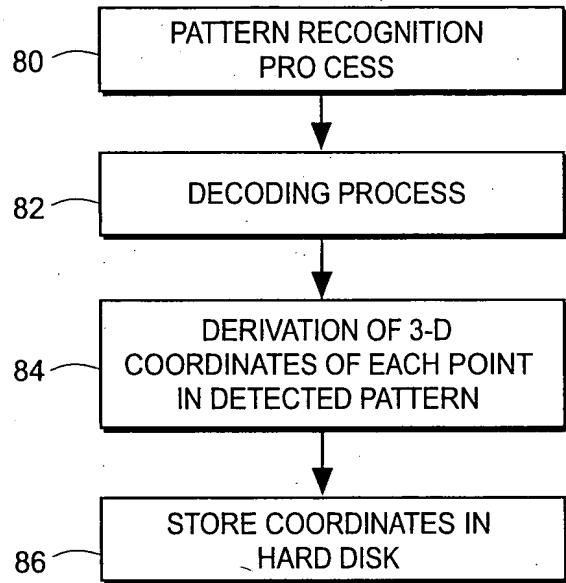


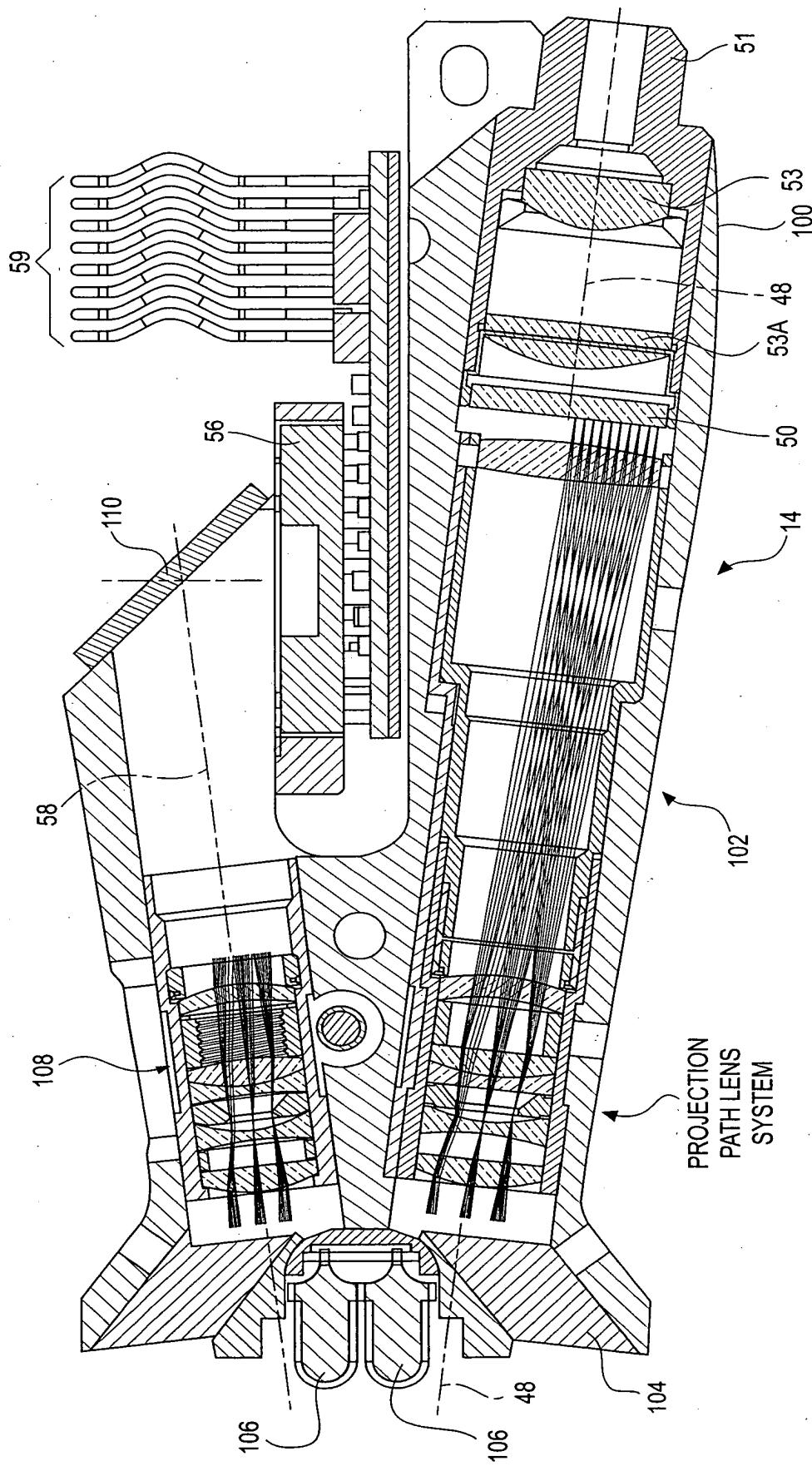
FIG. 7

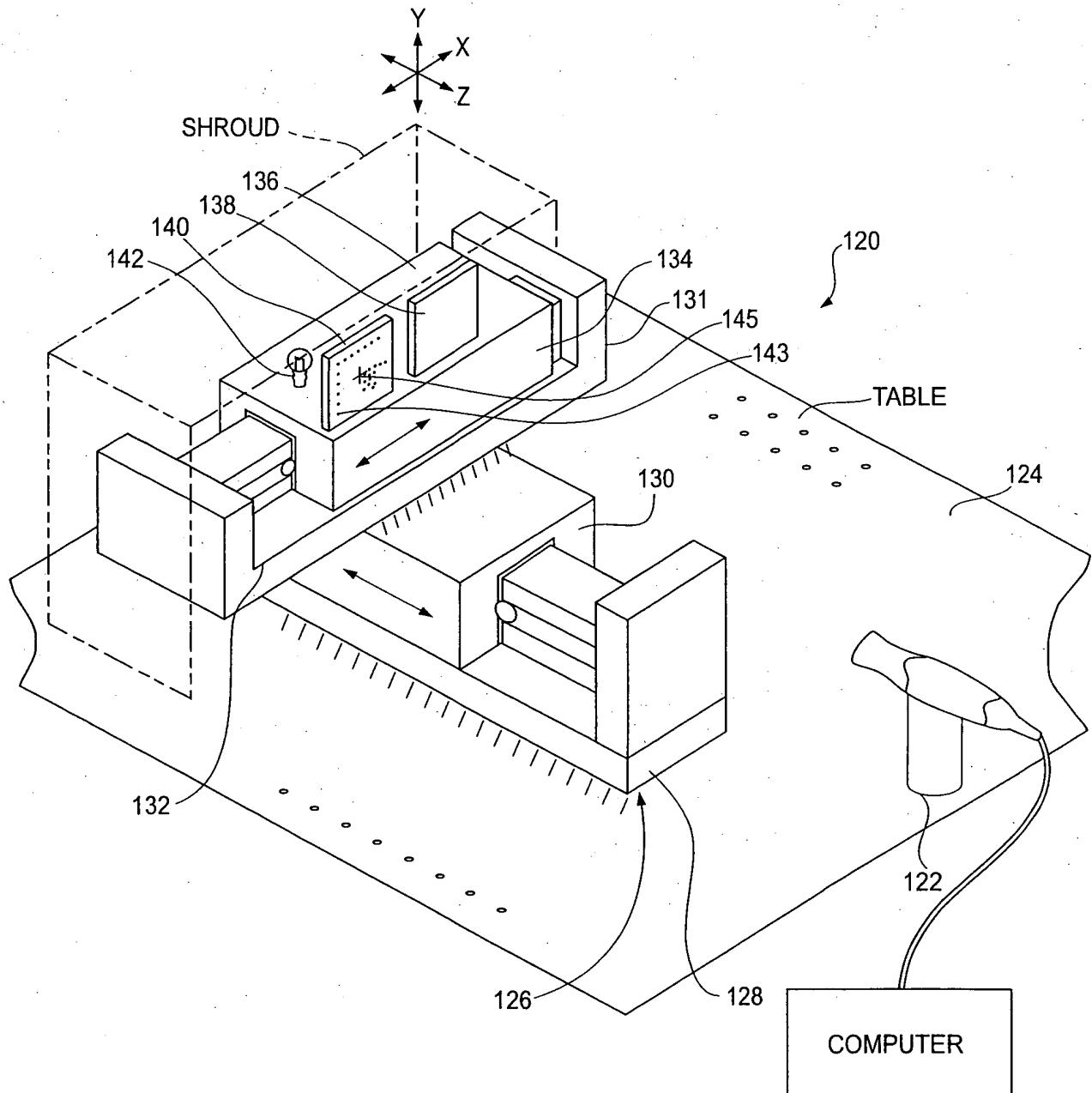
FIG. 8

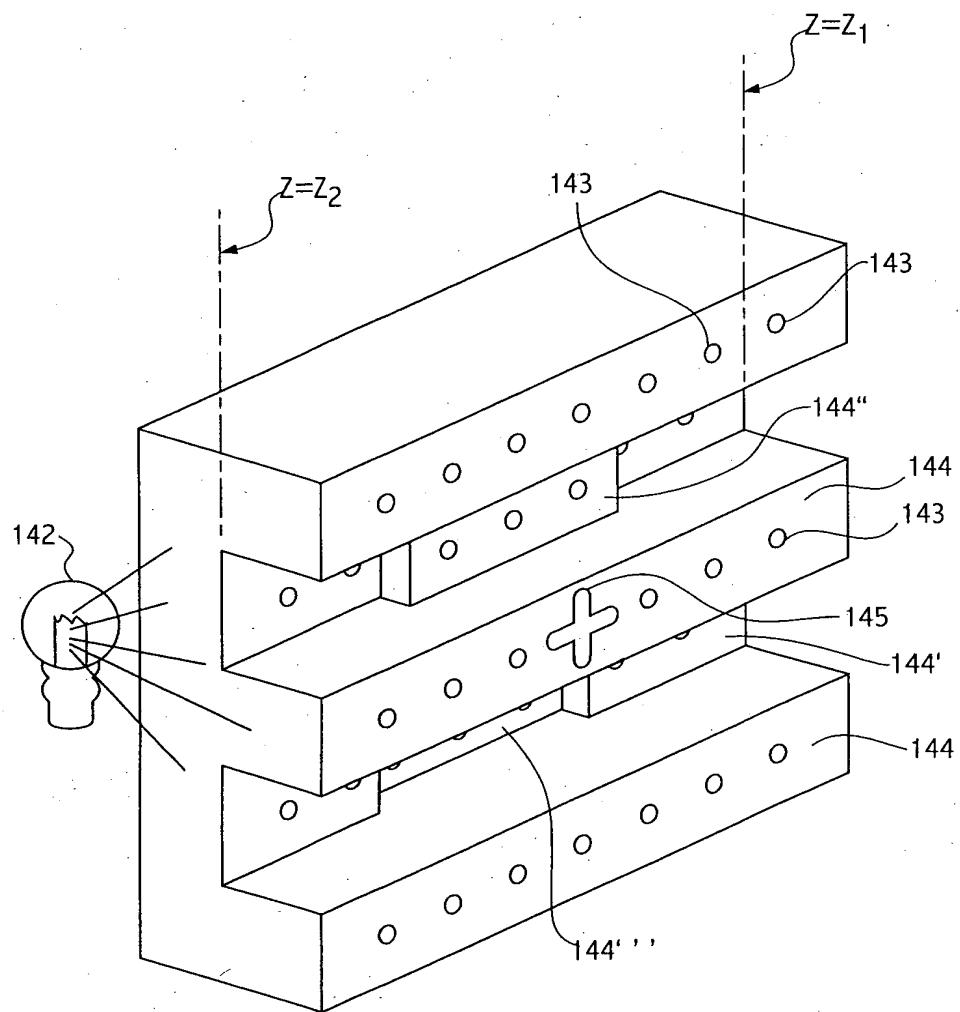
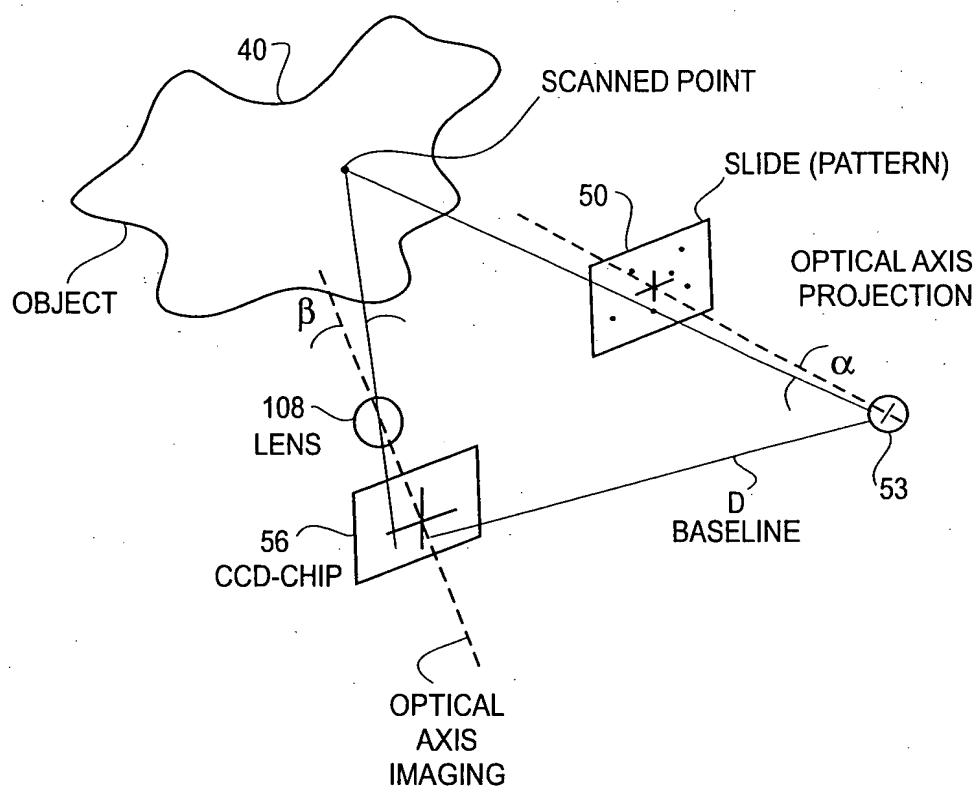
FIG. 8A

FIG. 9



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FIG. 9A

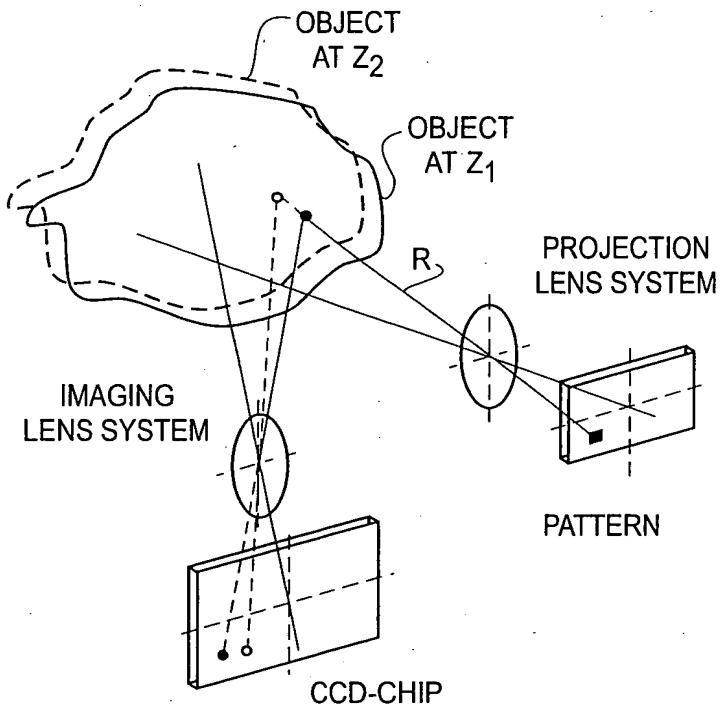


FIG. 9B

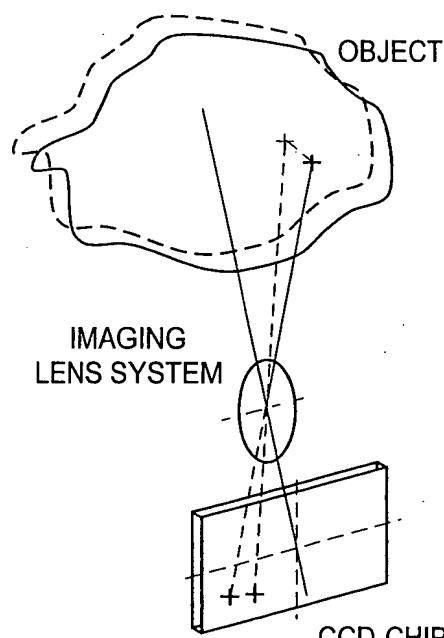
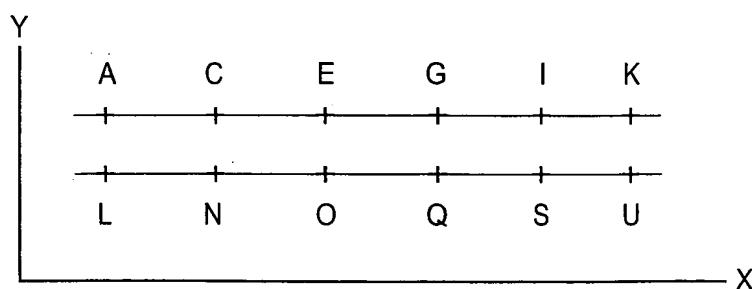


FIG. 9C



PIXEL COORDINATES FOR PORTIONS OF THE PATTERN ASSIGNED TO A CERTAIN Z-LEVEL

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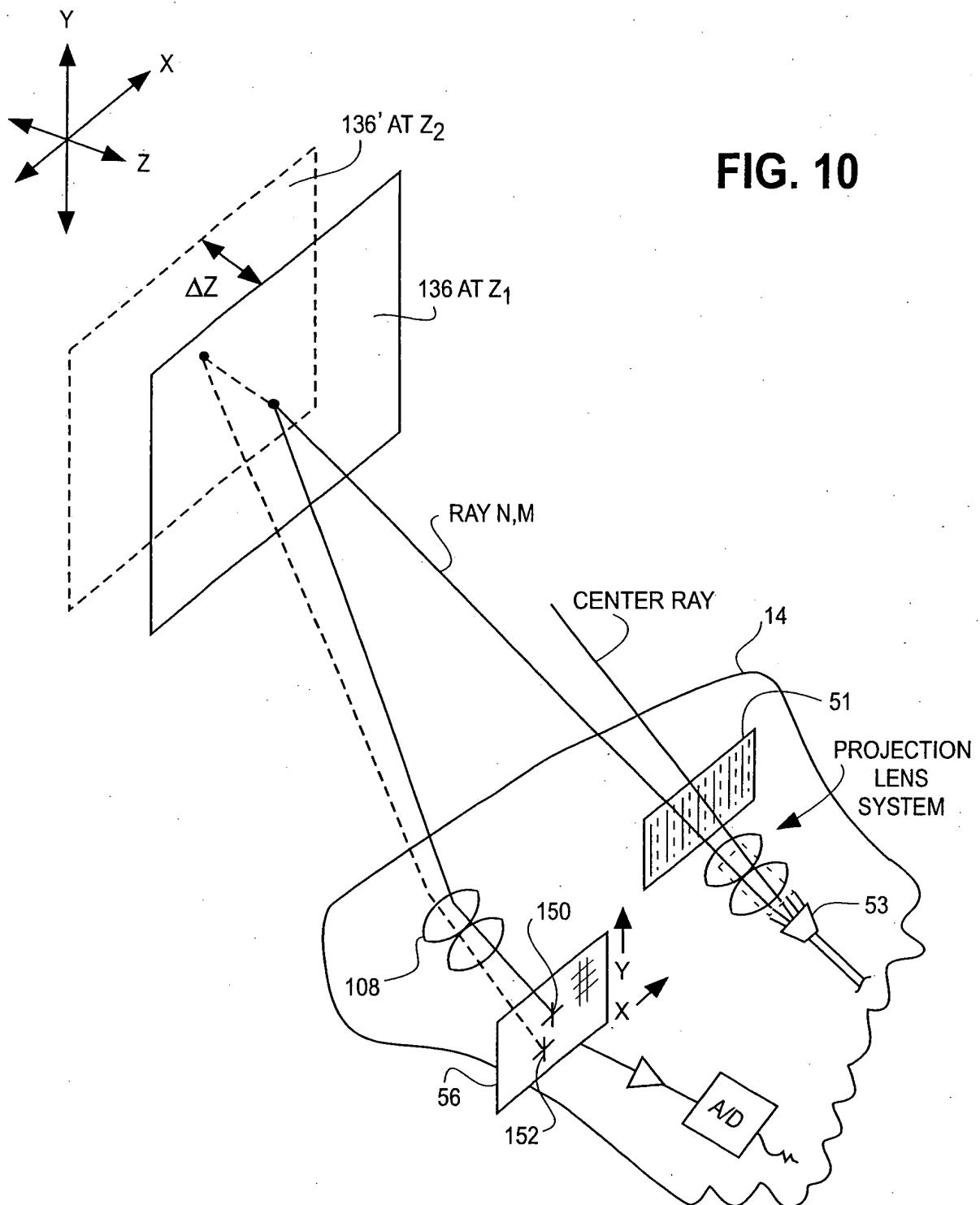
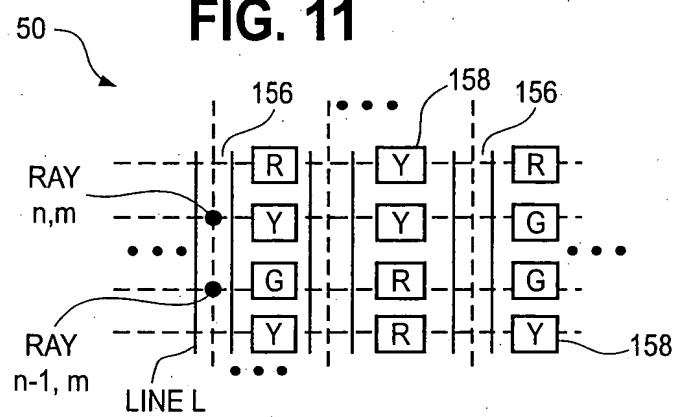
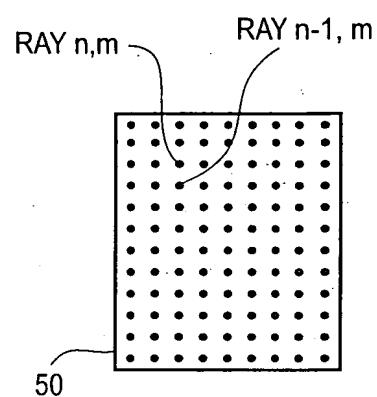
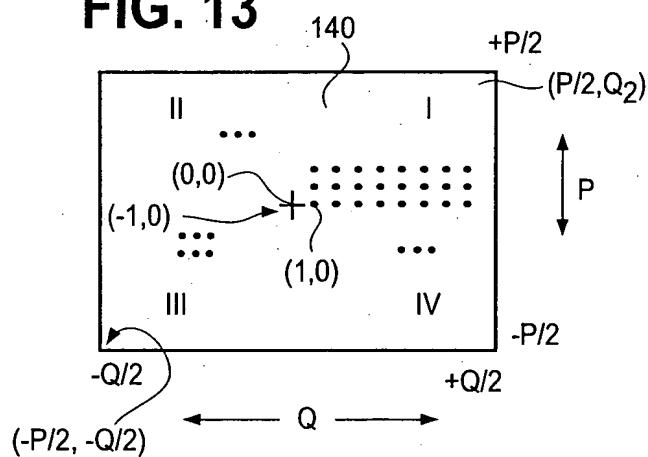
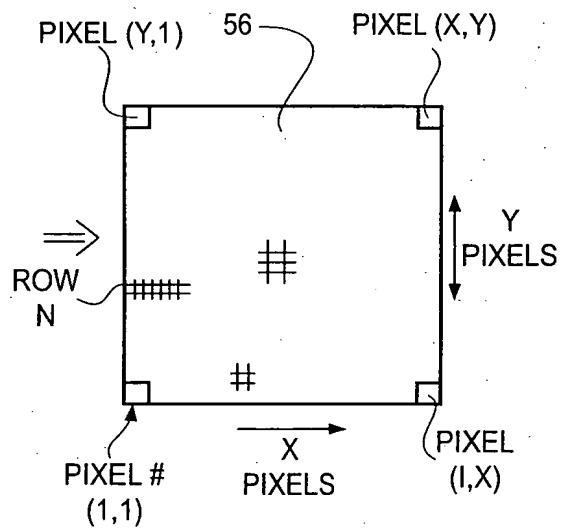
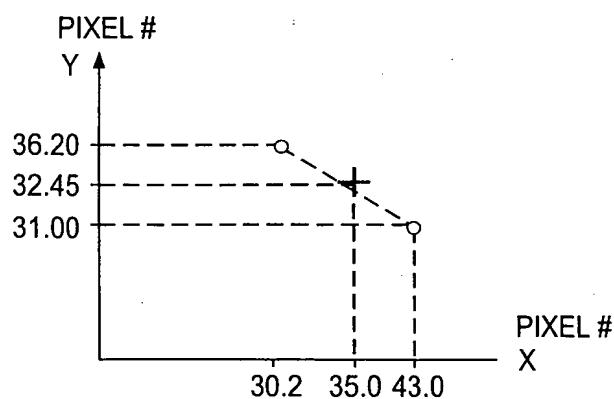


FIG. 11**FIG. 12****FIG. 13****FIG. 14****FIG. 15****FIG. 16**

X-Y CALIBRATION GRID POINTS

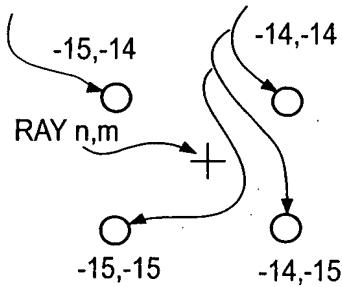
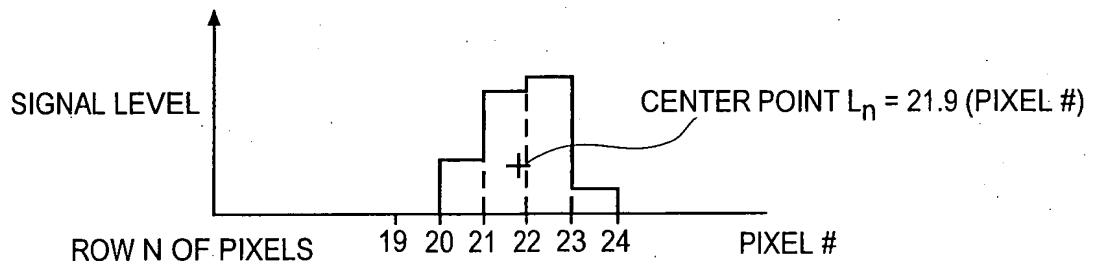
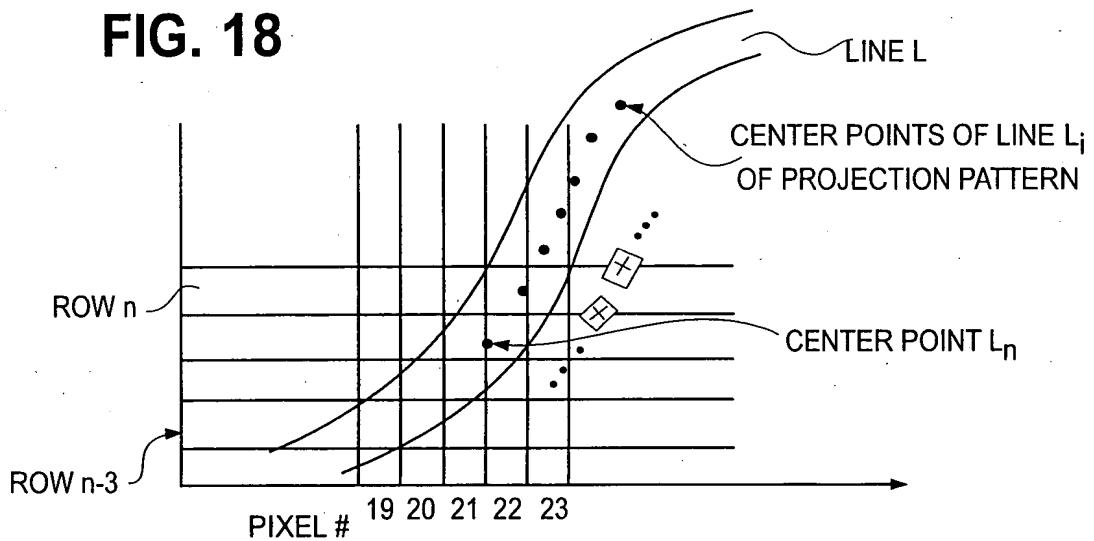
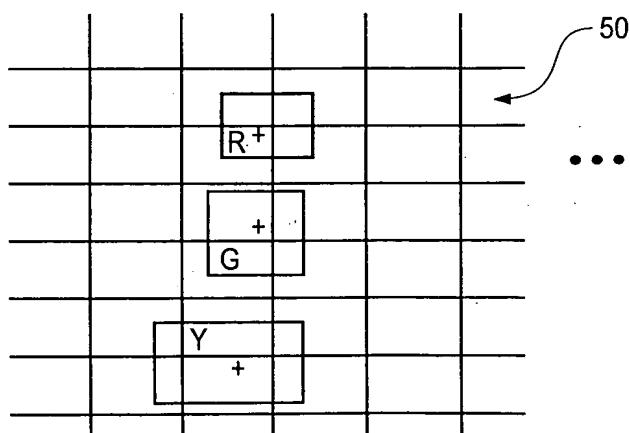


FIG. 17**FIG. 18****FIG. 19**

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FIG. 20

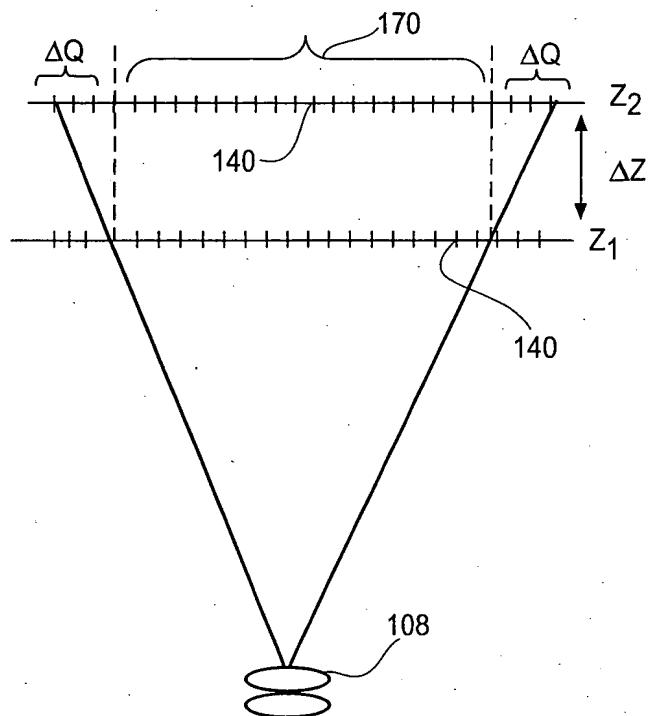


FIG. 21

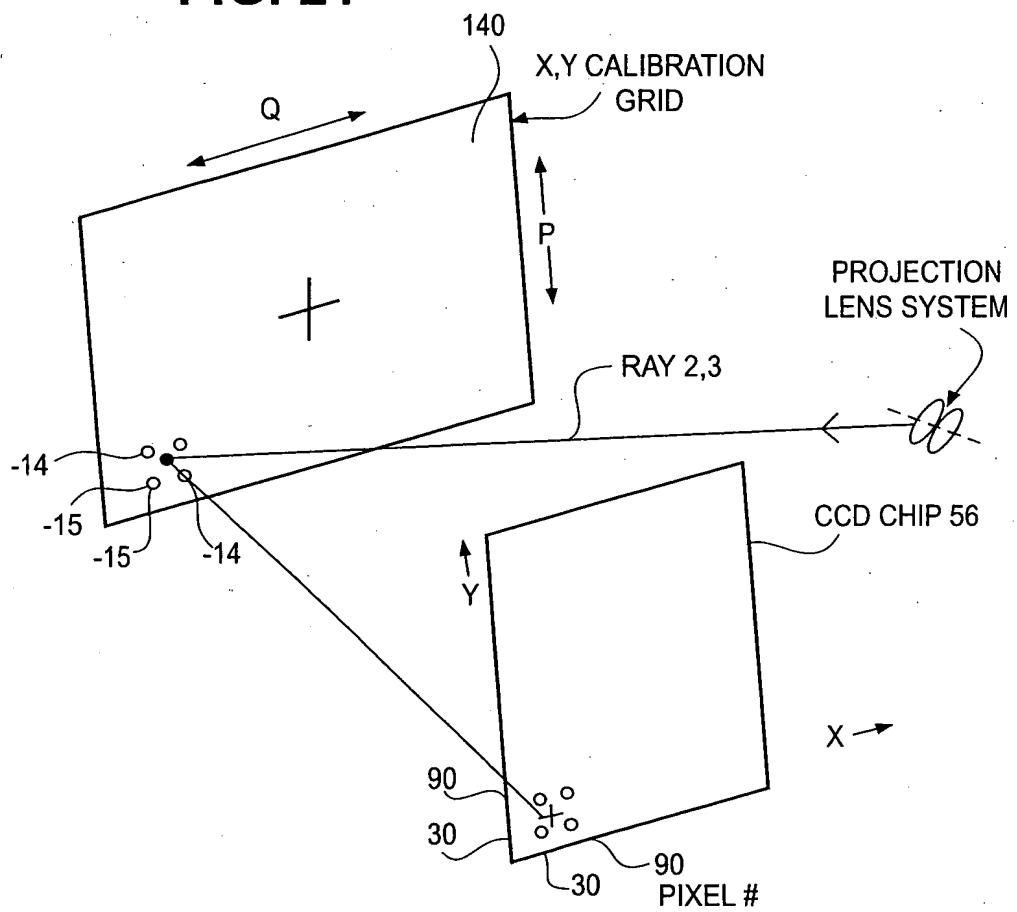


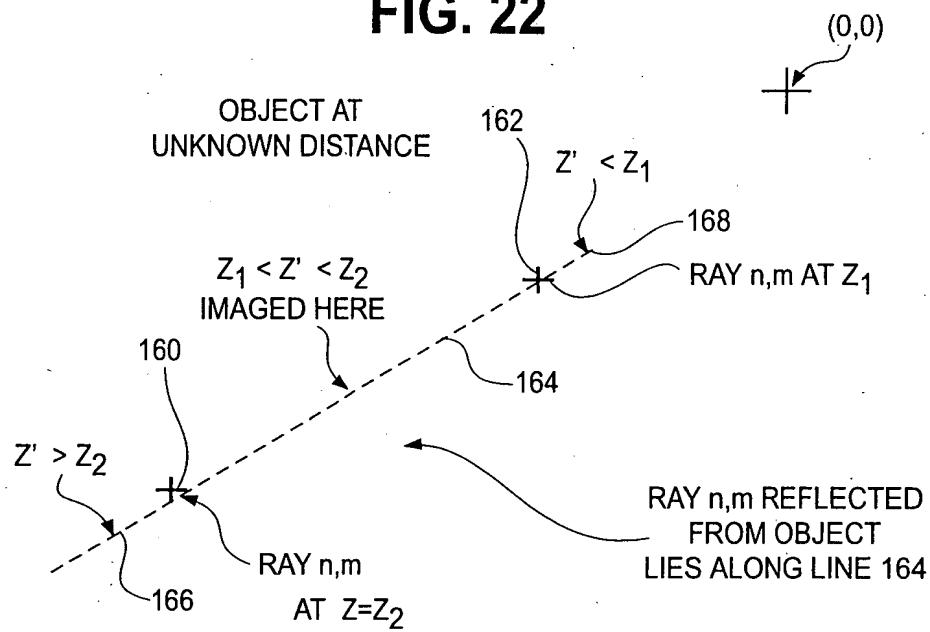
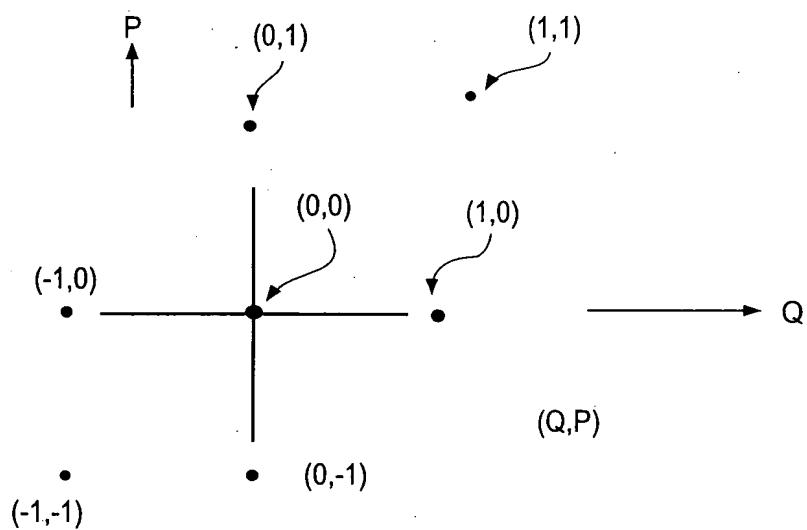
FIG. 22**FIG. 23**

FIG. 24

CCDX, CC DY = PIXEL #, IN SUBPIXEL RESOLUTION

(BEFORE)

CALIBRATION TABLE #1

	LINE 1				LINE 2				•••				LINE N			
	ROW 1	ROW 2	ROW 3	ROW 4	•••	ROW M	ROW 1	ROW 2	ROW 3	ROW 4	•••	ROW M	ROW 1	ROW 2	•••	ROW M
CCDX	1.0	1.1	1.5	2.1	•••	27.1	29.5	30.2	37.1							
MM DIST.																
Z ₁ CC DY	10.2	20.4	32.8	44.5												
MM DIST.																
CCDX	3.9	4.5	6.8	12.2												
MM DIST.																
Z ₂ CC DY	12.1	21.5	30.4	46.3												
MM DIST.																

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FIG. 25

CALIBRATION TABLE #2

QUADRANT I

		ROW 0			ROW 1			(Q,P)			ROW + P/2						
		(0,0)	(1,0)	(2,0)	(3,0)	••••	(Q/2 - ΔQ,0)	••••	(Q/210)	(0,1)	(1,1)	(2,1)	••••	(0, P/2)	(1, P/2)	••••	(Q/2, P/2)
Z_1	CCDX	640.1	700.2	760.6	820.5	••••	••••	—	640.1	700.2	••••	—	••••	••••	••••	1,279.5	
	CCDY	640.1	640.1	640.3	640.4	••••	••••	—	701.2	701.5	••••	—	••••	••••	••••	1,279.4	
Z_2	CCDX	640.2	680.3	741.2	801.6	••••	••••	1,279.5	••••	681.2	••••	—	••••	••••	••••	1,256.4	
	CCDY	640.2	640.3	640.1	640.1	••••	••••	640.2	••••	680.9	••••	—	••••	••••	••••	1,251.5	

QUADRANT II

		ROW			ROW 1			ROW + P/2									
		(-1,0)	(-2,0)	(-3,0)	(-4,0)	••••	(-Q/2 - ΔQ,0)	••••	(-Q/210)	(-1,1)	(-2,1)	(-3,1)	••••	(-1, P/2)	(-2, P/2)	••••	(-Q/2, P/2)
Z_1	CCDX																
	CCDY																
Z_2	CCDX																
	CCDY																

Z_1 CCDX $(-1,-1)$ $(-2,-1)$ ••••

CCDY — — — —

Z_2 CCDX — — — —

CCDY — — — —

QUADRANT III

••••

Z_1 CCDX $(0,-1)$ $(1,-1)$ ••••

CCDY — — — —

Z_2 CCDX — — — —

CCDY — — — —

QUADRANT IV

••••

CCDX, CC DY = PIXEL #, IN SUBPIXEL RESOLUTION

FIG. 26

CALIBRATION TABLE #1 (AFTER)

PATTERN	LINE 1				LINE 2				LINE N							
	ROW 1	ROW 2	ROW 3	ROW 4	• • •	ROW M	ROW 1	ROW 2	ROW 3	ROW 4	• • •	ROW M	ROW 1	ROW 2	• • •	ROW M
CCDX	1.0	1.1	1.5	2.1	• • •	27.1	29.5	30.2	37.1							
MM DIST.										-14.6						
Z ₁	CCDY	10.2	20.4	32.8	44.5		11.5	21.6	36.2	44						
MM DIST.										-14.4						
Z ₂	CCDX	3.9	4.5	6.8	12.2		34.0	41.1	43.0	46						
MM DIST.										-14.8						
Z ₂	CCDY	12.1	21.5	30.4	46.3		13.2	21.8	31.0	48.2						
MM DIST.										-15.8						

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Fig. 27

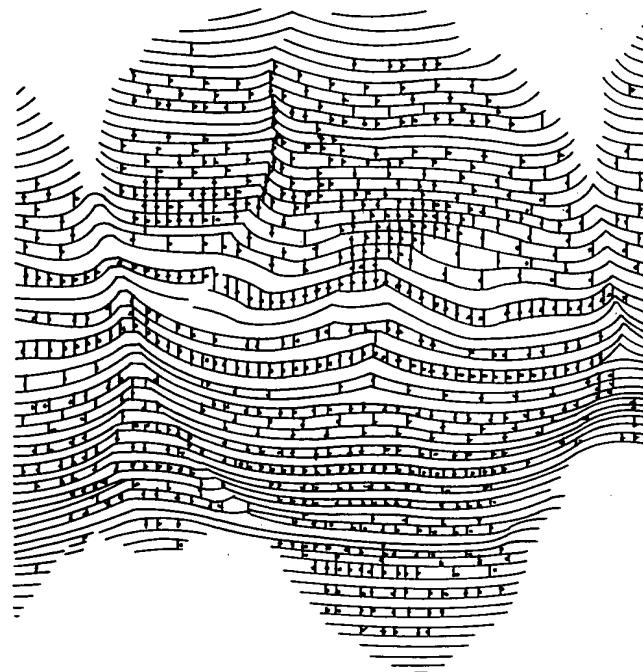


Fig. 28

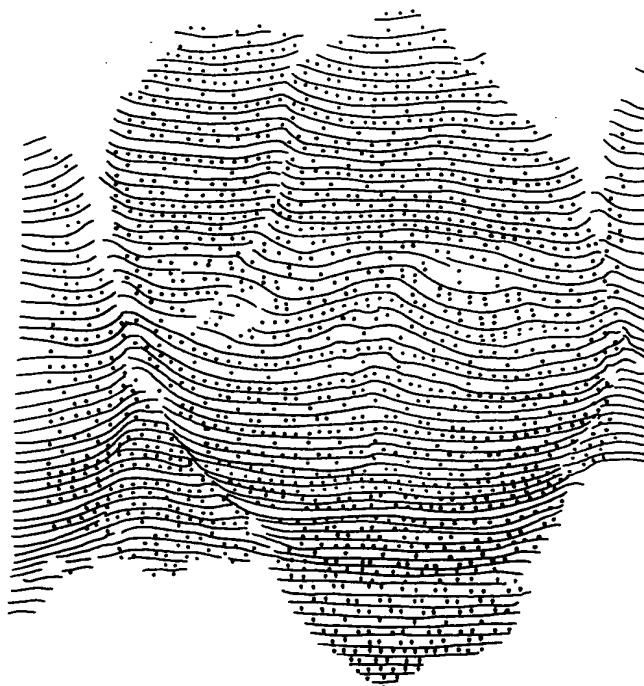


Fig. 29



Fig. 30

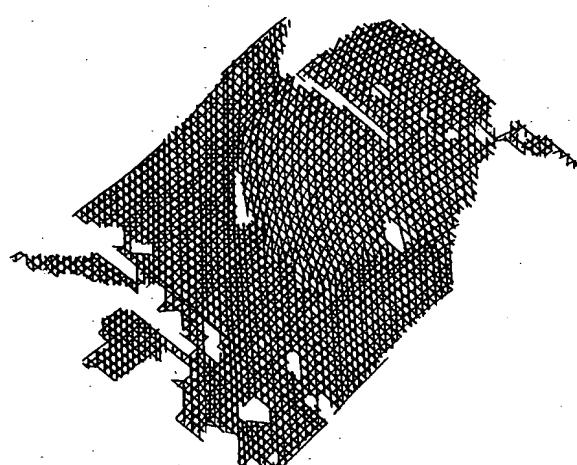


Fig. 31



Fig. 32



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Fig. 33



Fig. 34

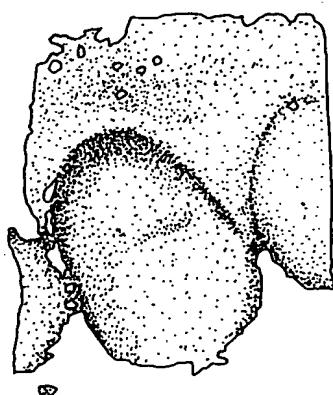


Fig. 35

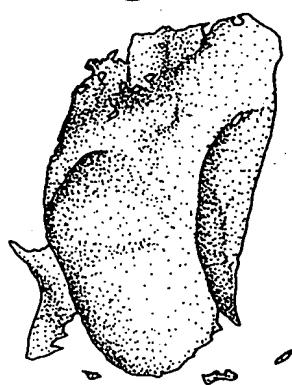
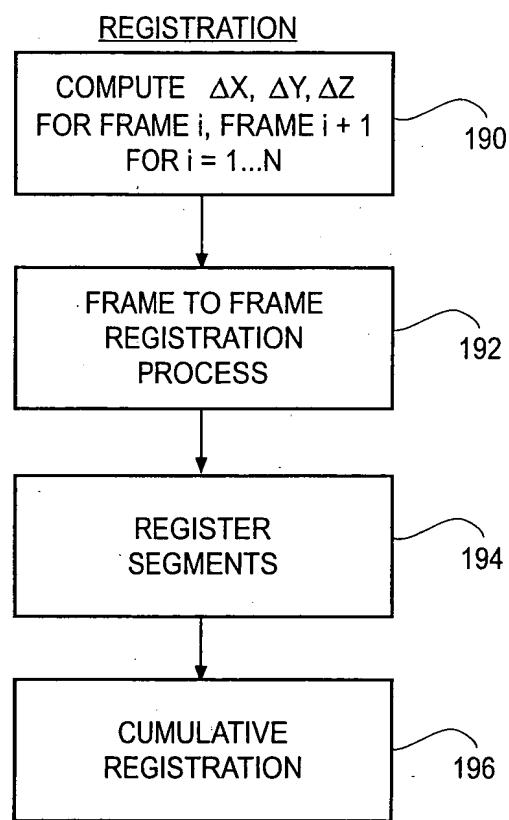


FIG. 36

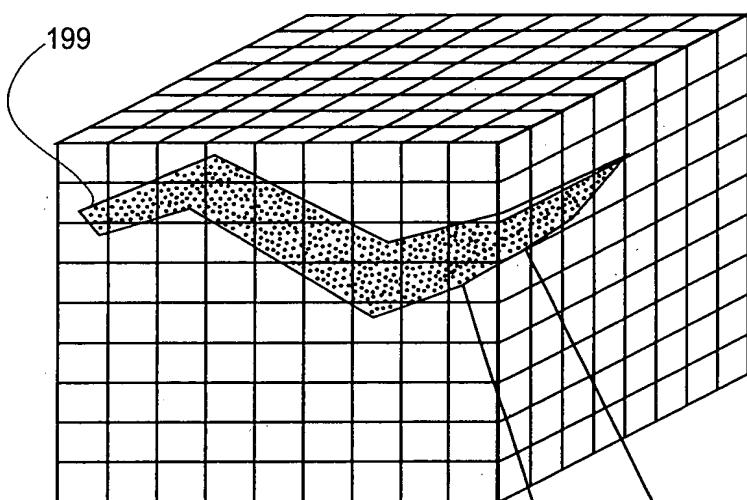
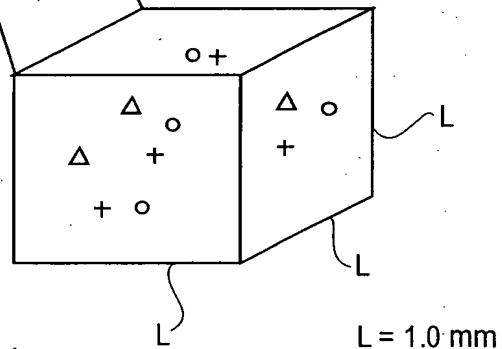


FIG. 37A

FIG. 37B



Δ = POINTS OF FRAME i
 $+$ = POINTS OF FRAME $i + 1$
 \circ = POINTS OF FRAME $i + 2$

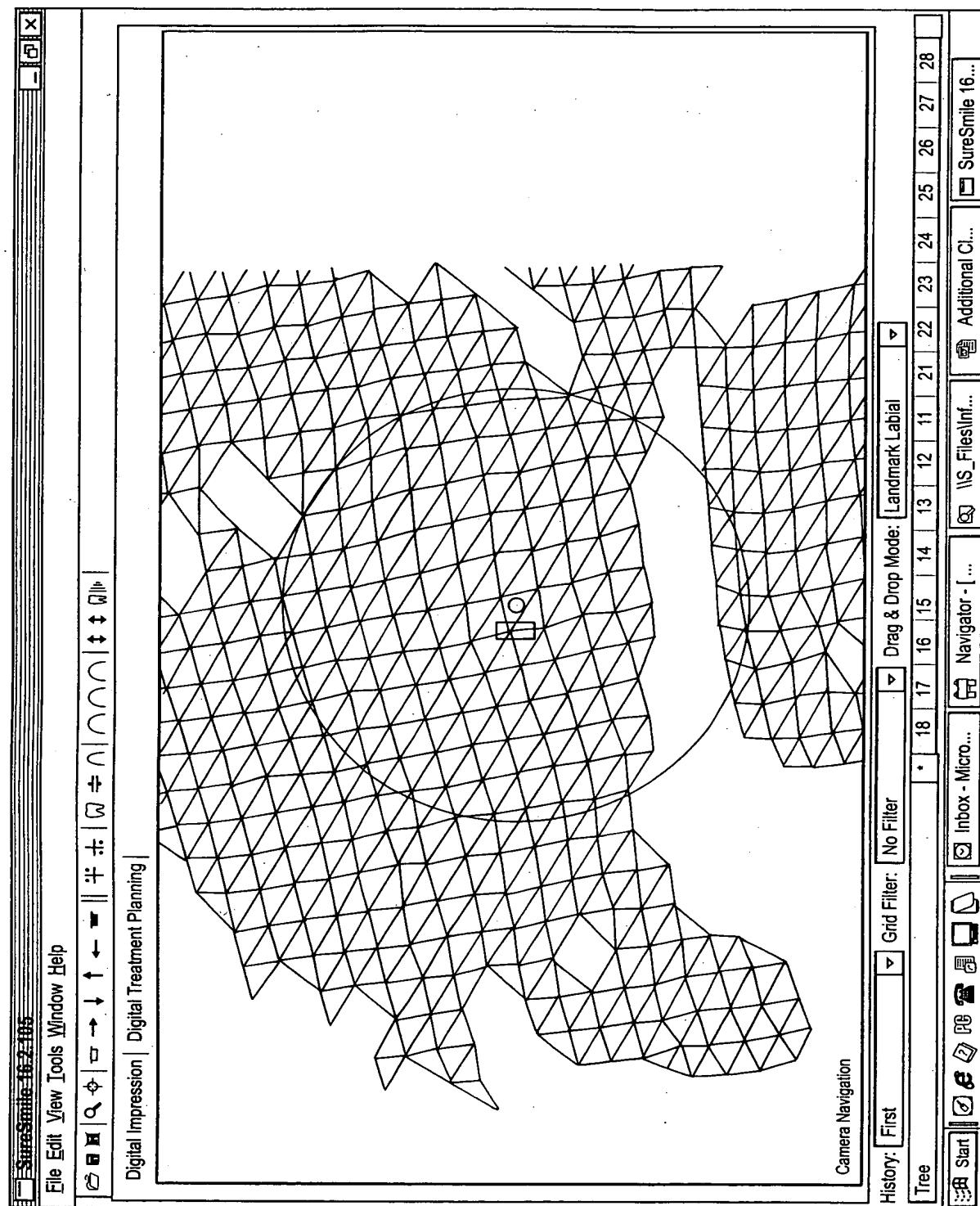


FIG. 37C

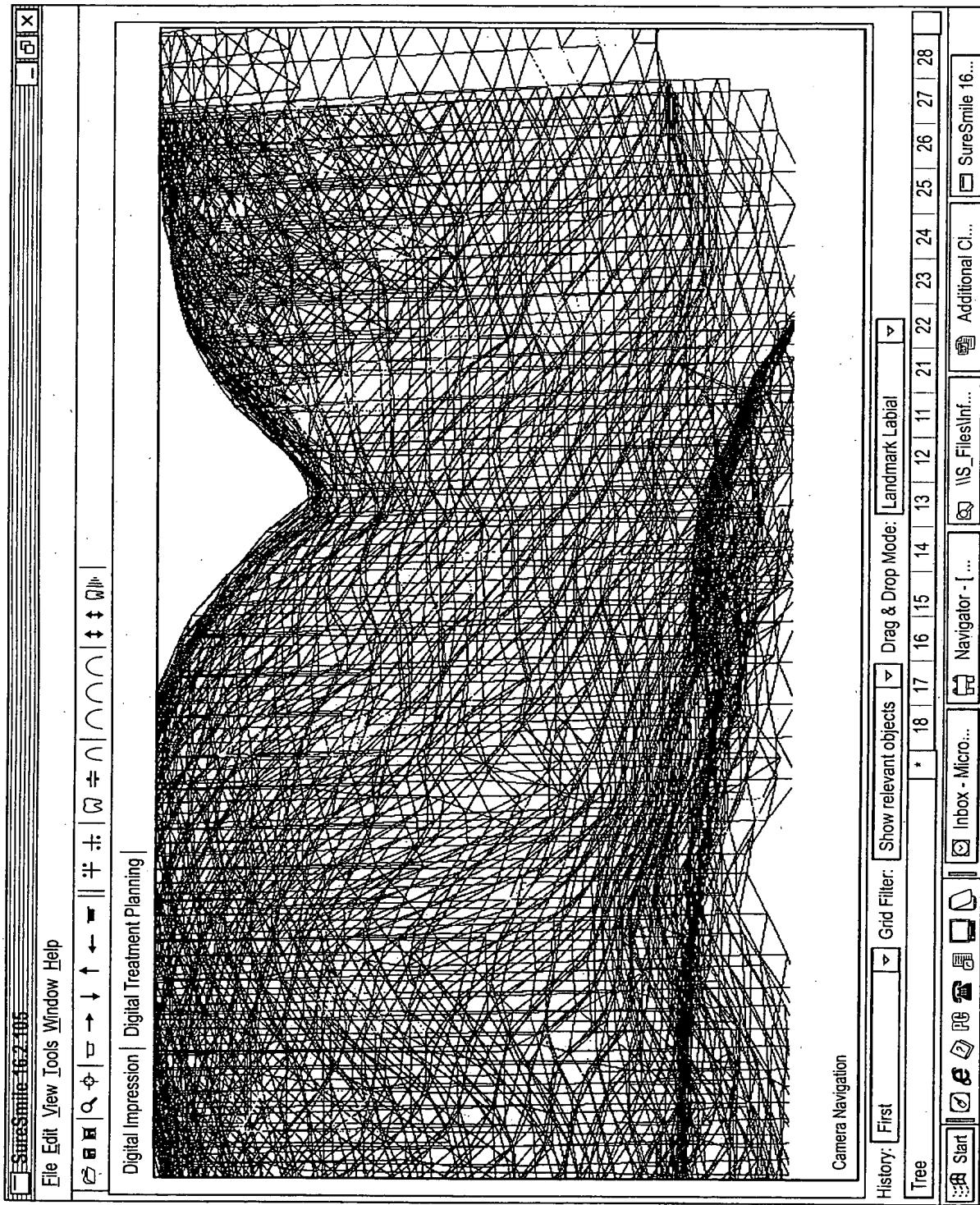
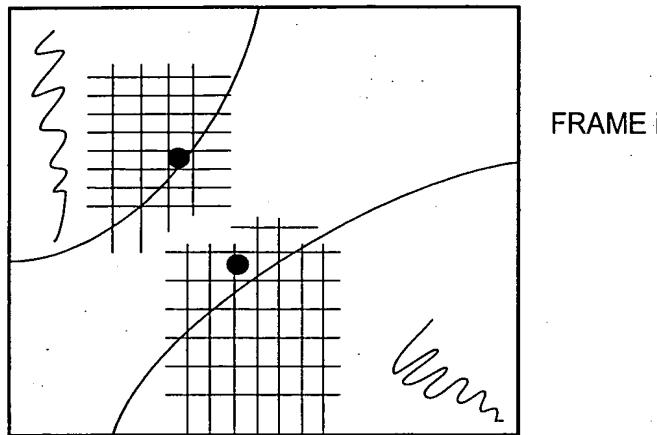
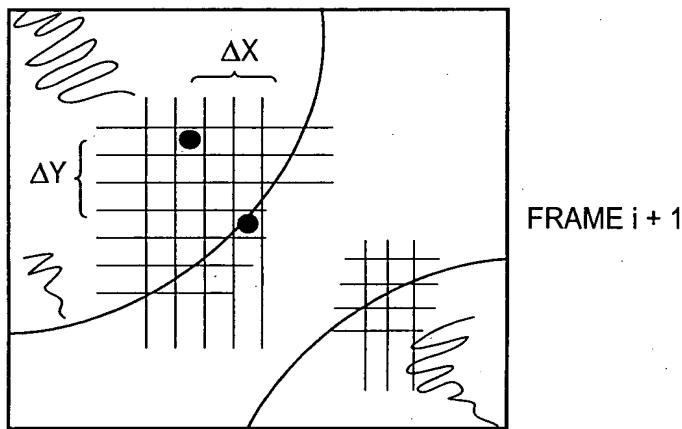
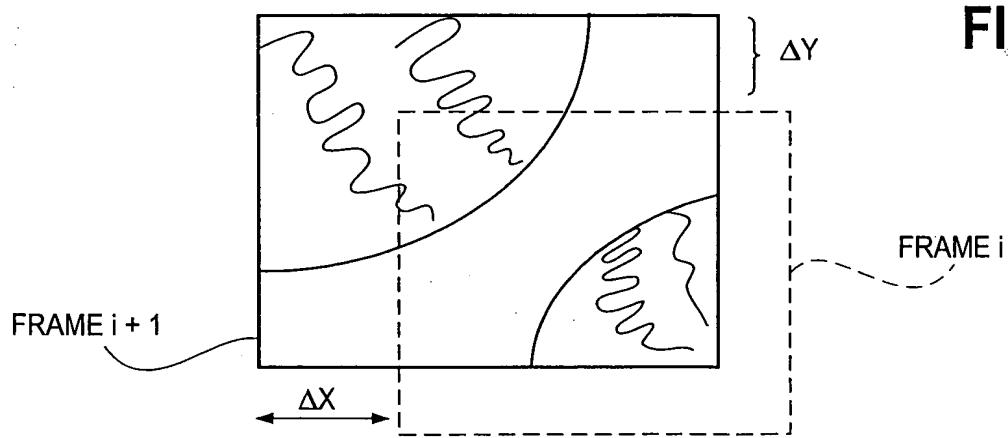
FIG. 37D

FIG. 38A

FRAME i

FIG. 38B

FRAME i + 1

FIG. 38C ΔY

FRAME i

FRAME i + 1

 ΔX

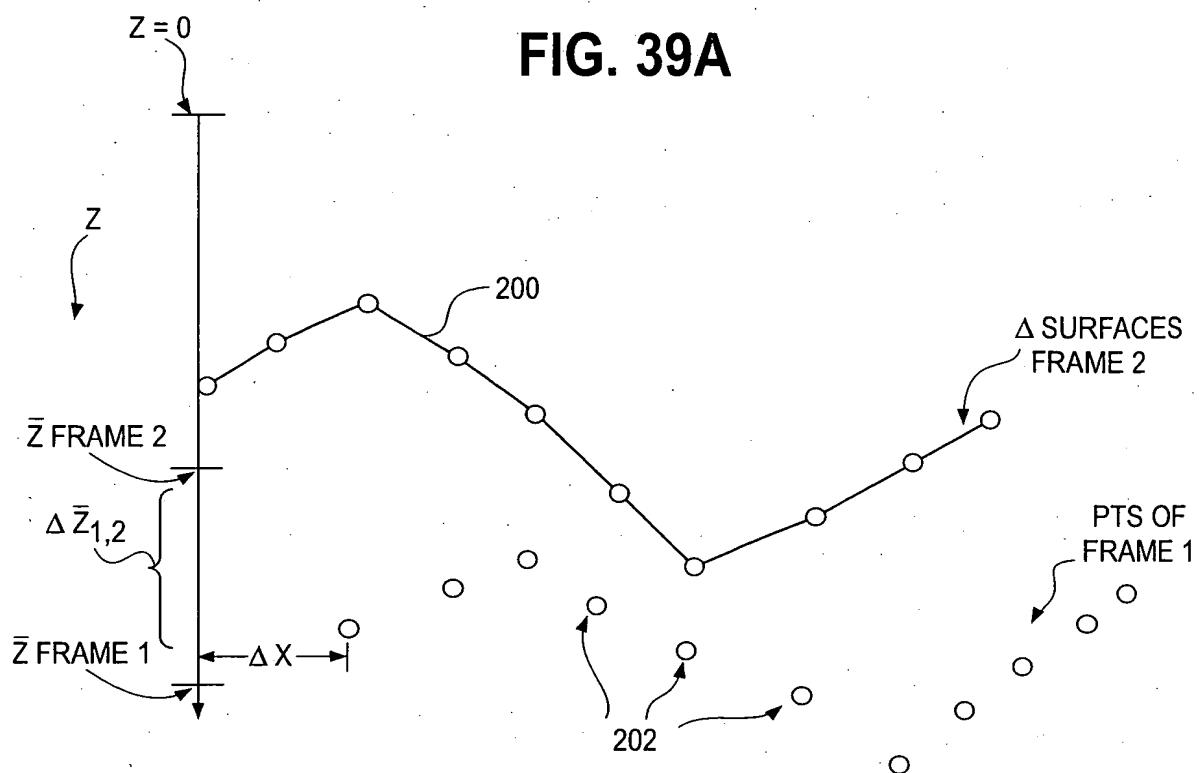
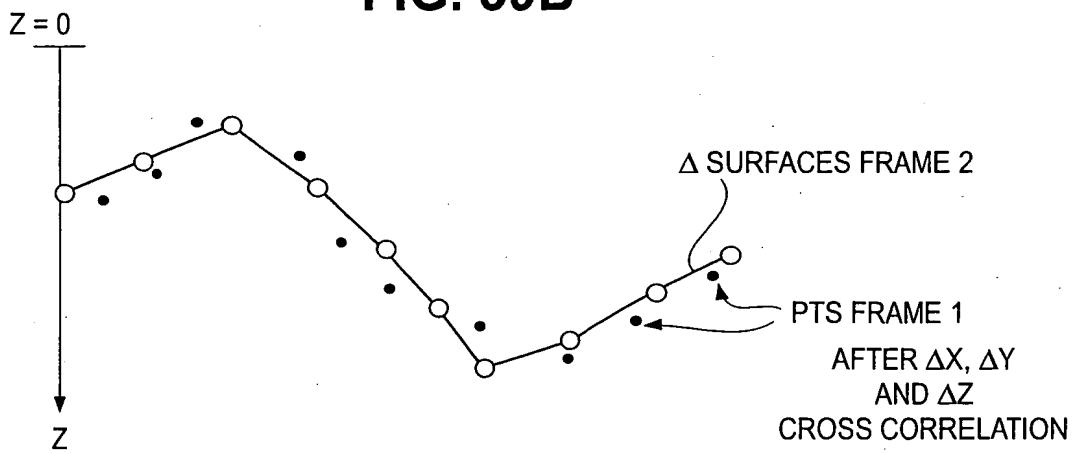
FIG. 39A**FIG. 39B**

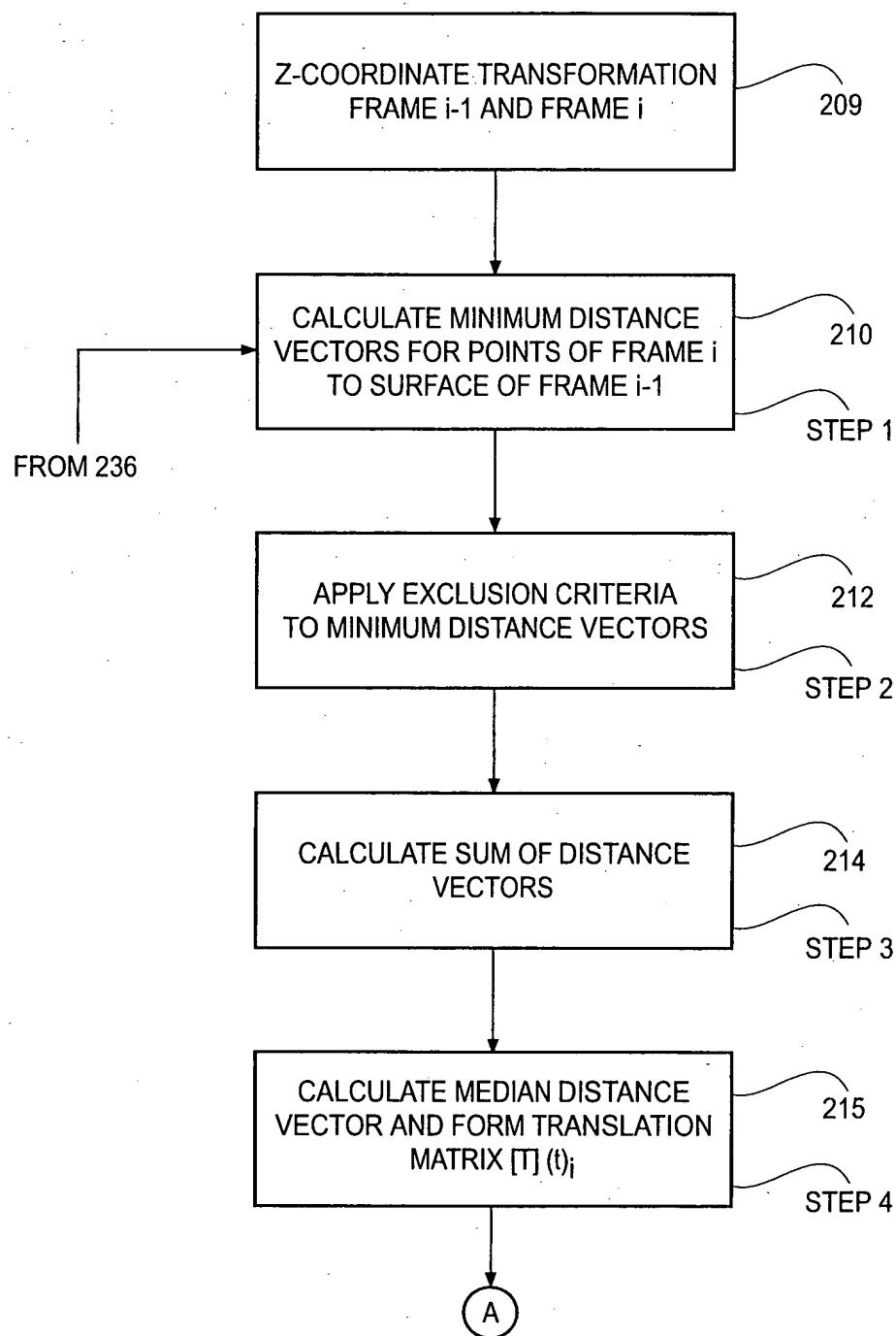
FIG. 40A

FIG. 40B

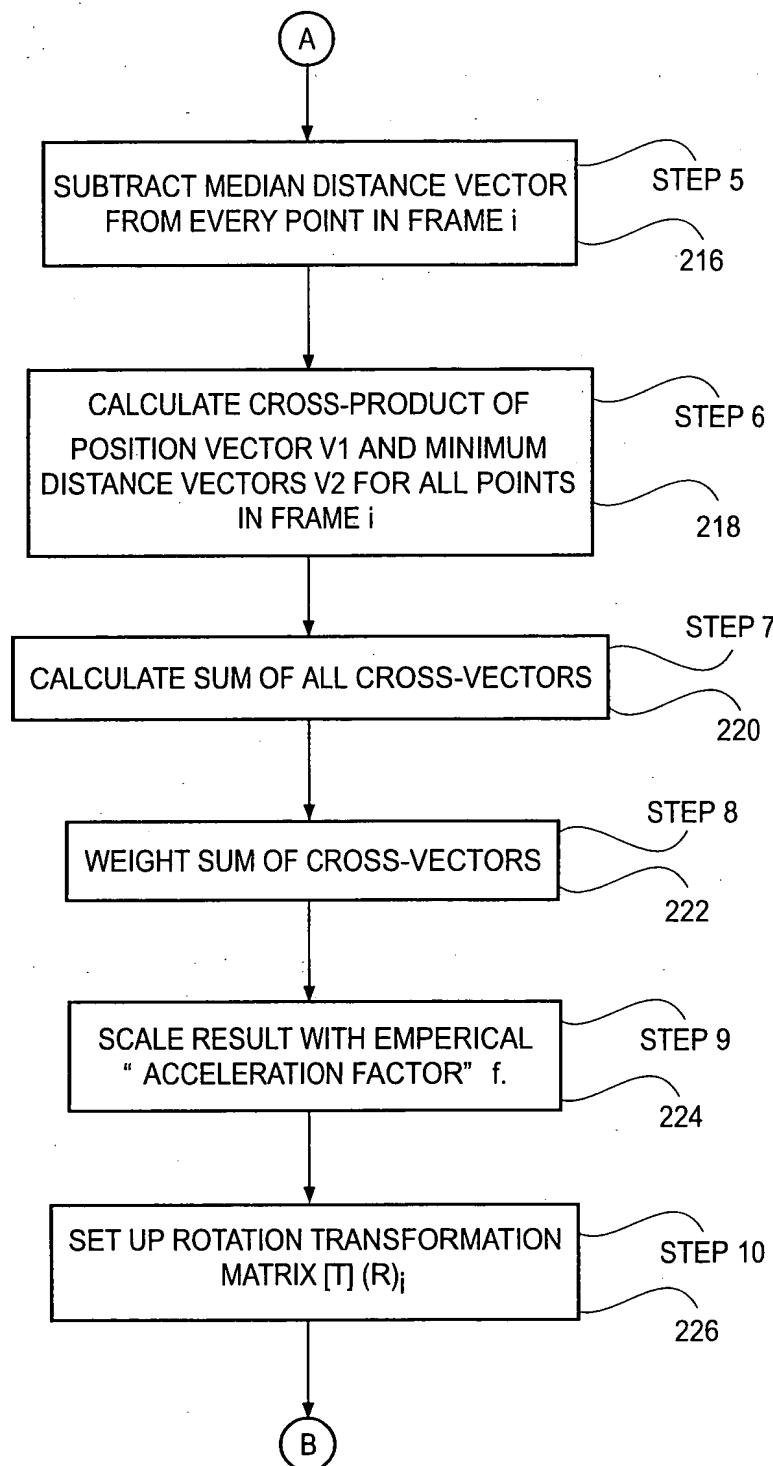


FIG. 40C

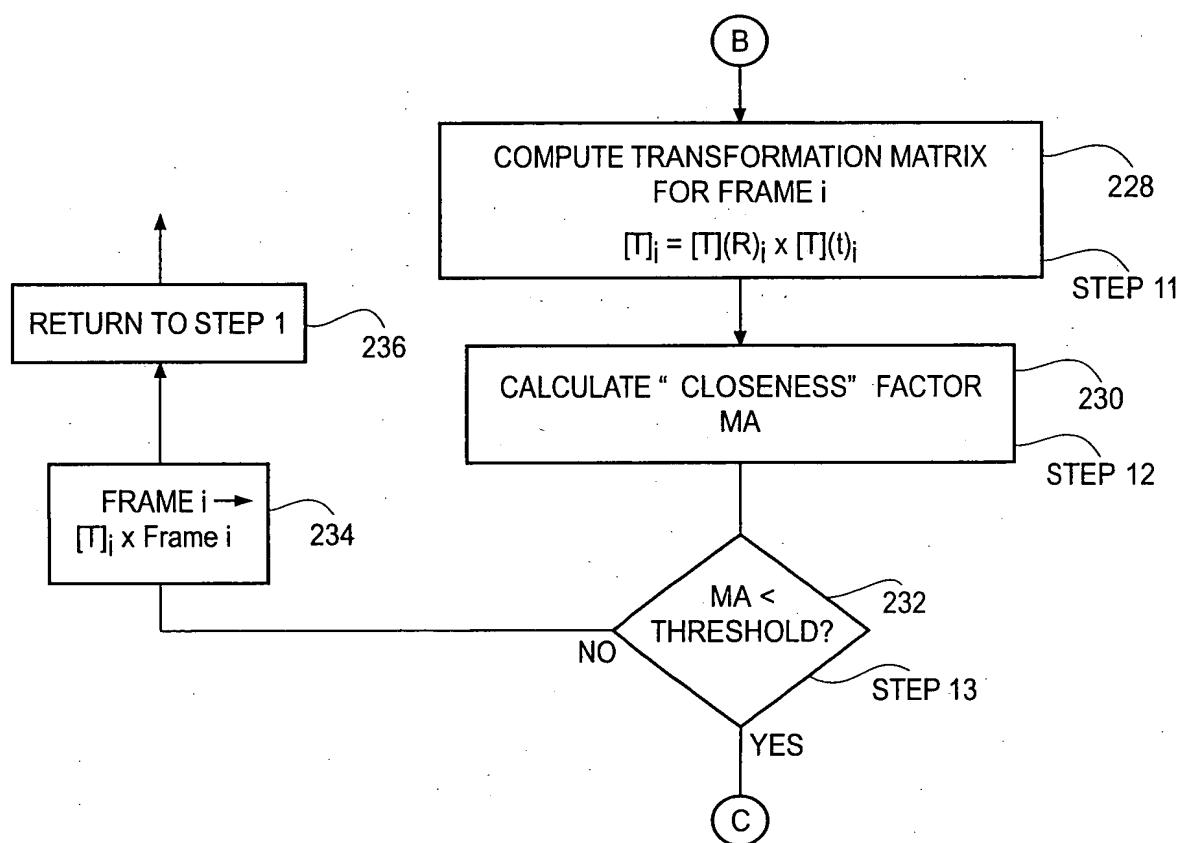


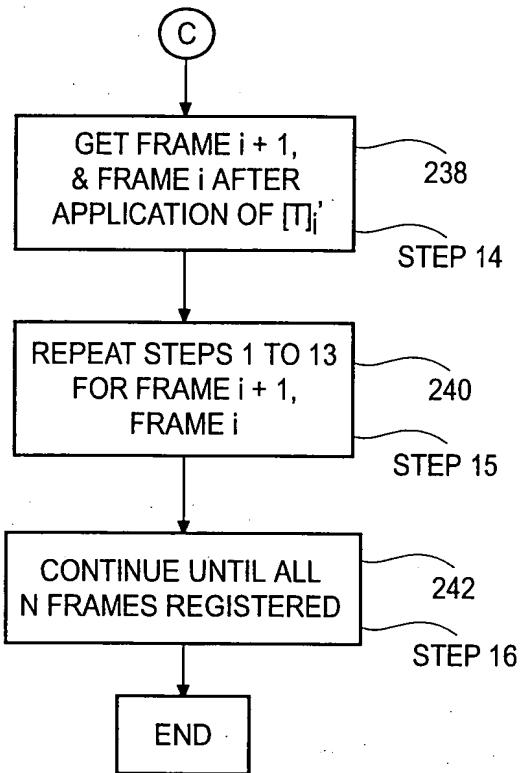
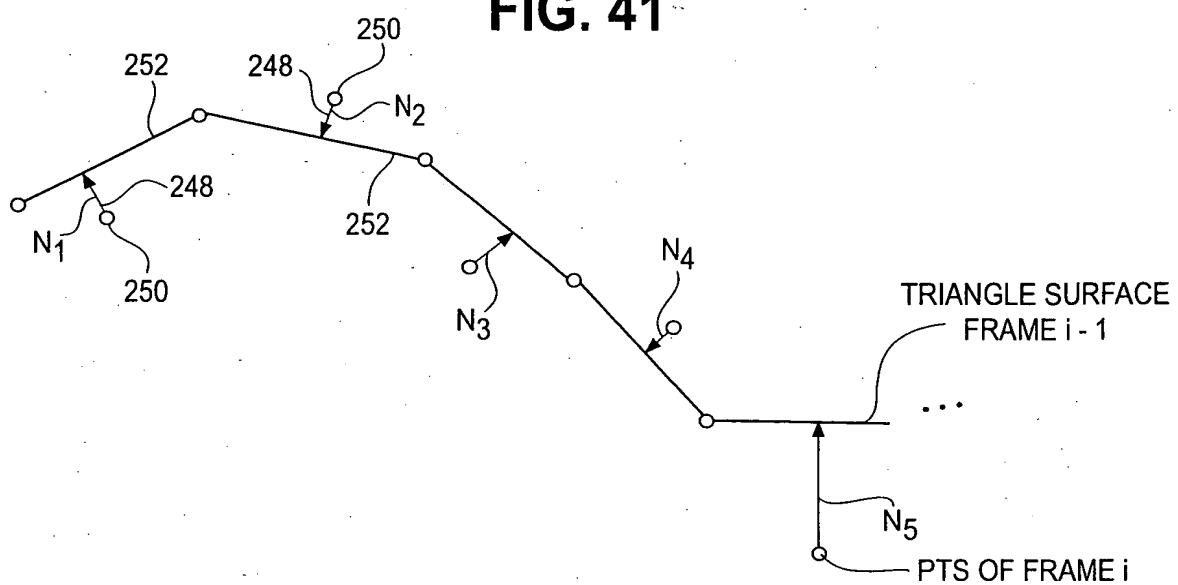
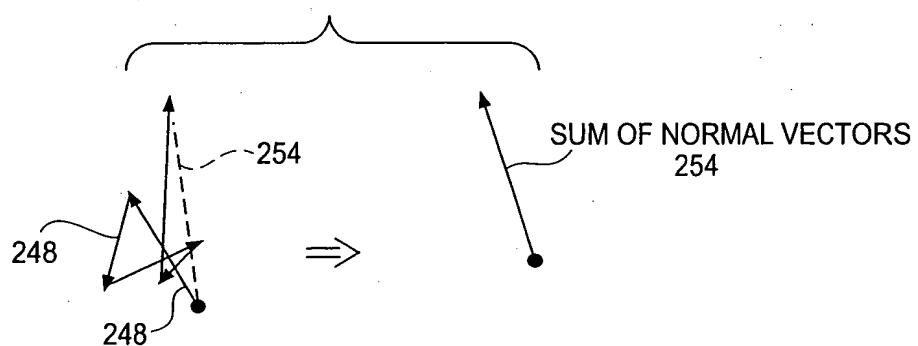
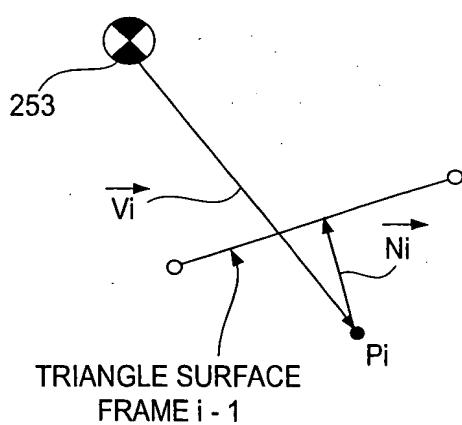
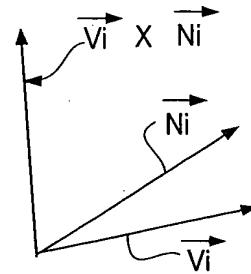
FIG. 40D

FIG. 41**FIG. 42****FIG. 43****FIG. 44**

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FIG. 45

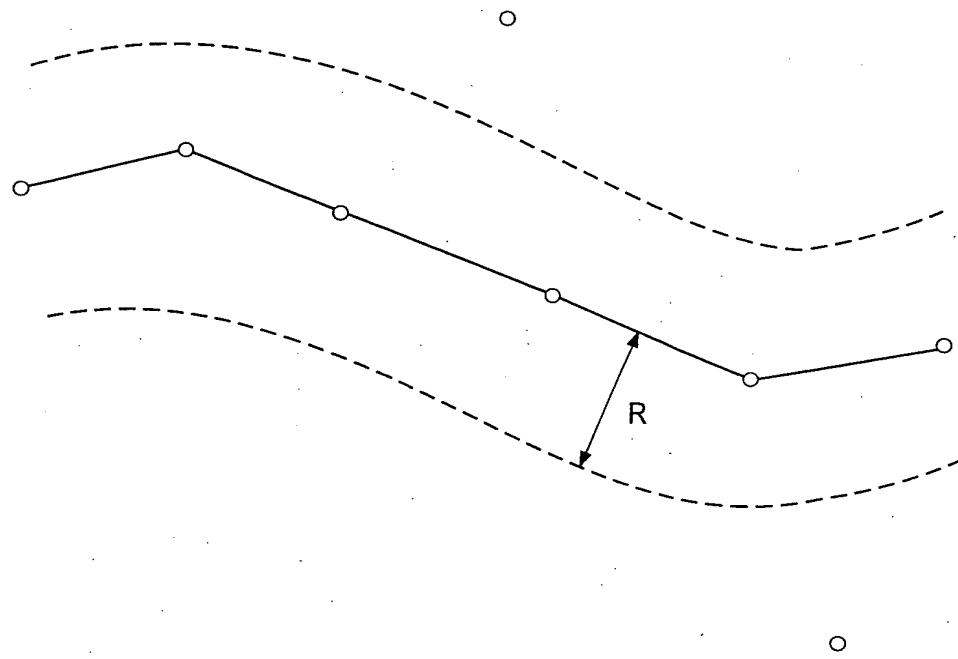


FIG. 46

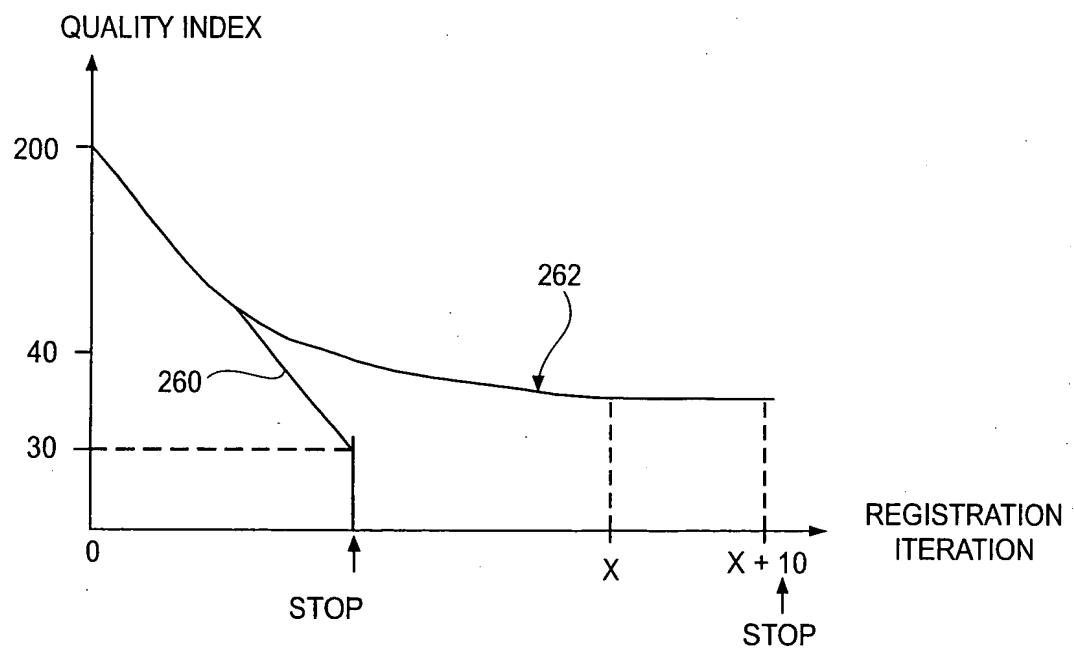


FIG. 47A

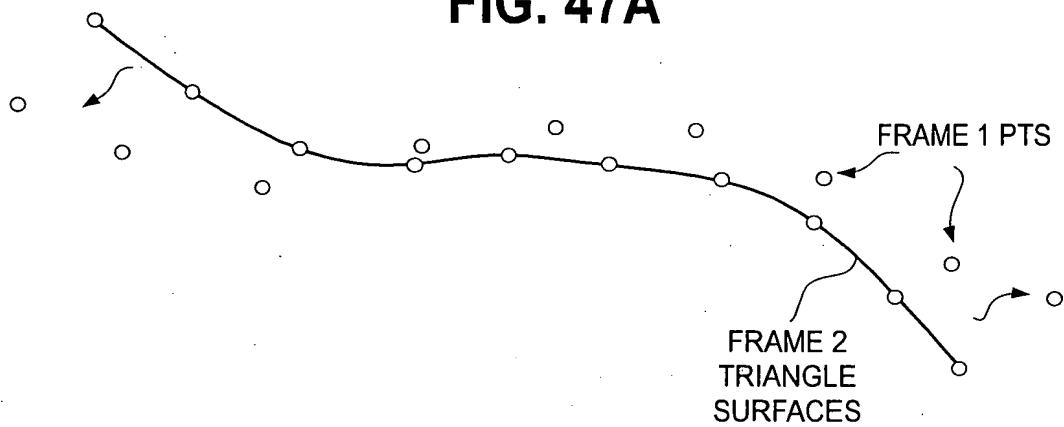


FIG. 47B

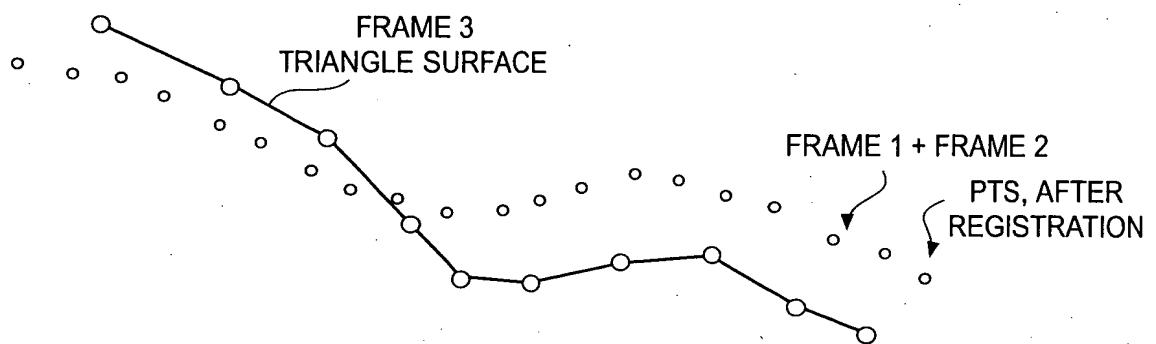


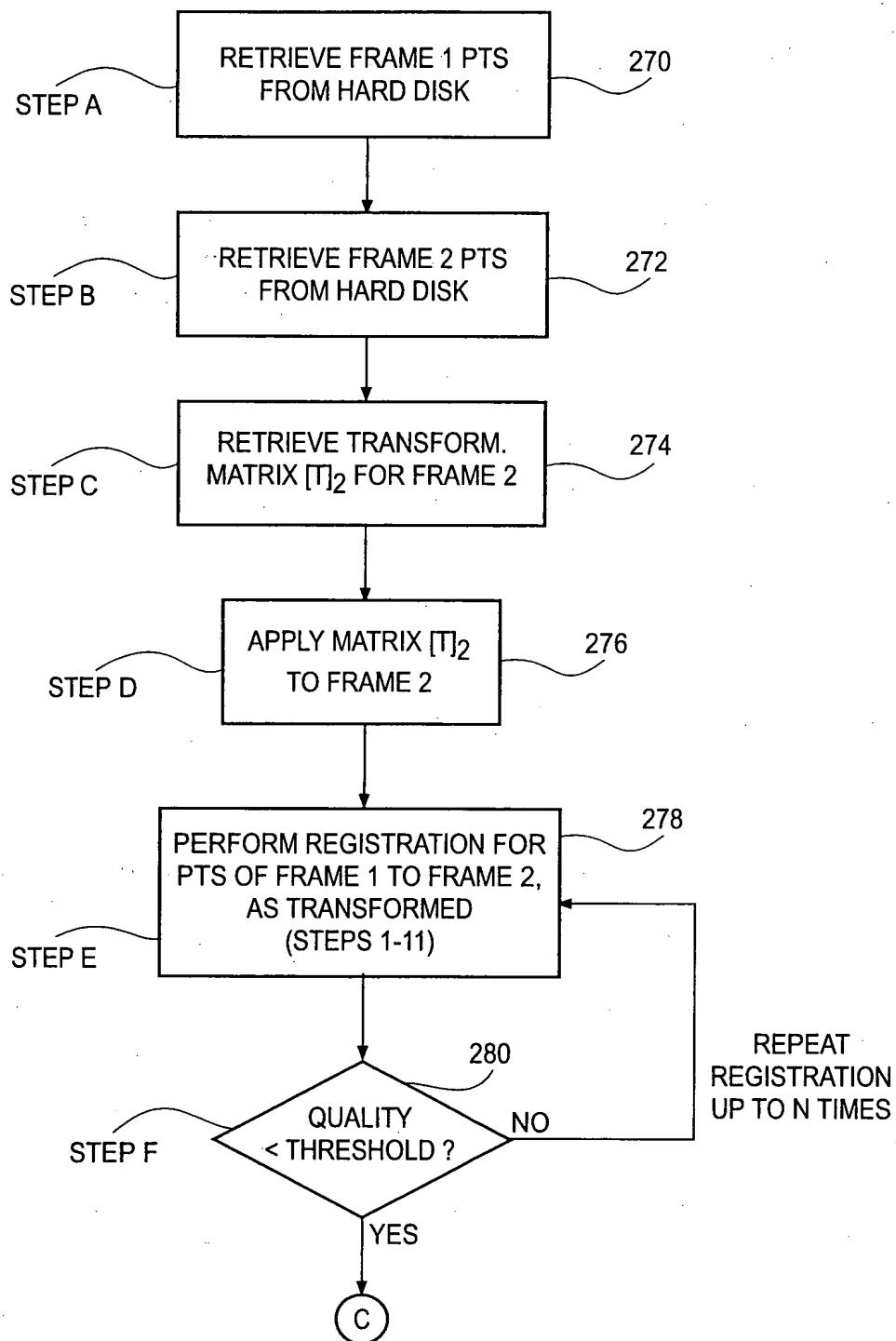
FIG. 48ACUMULATIVE REGISTRATION

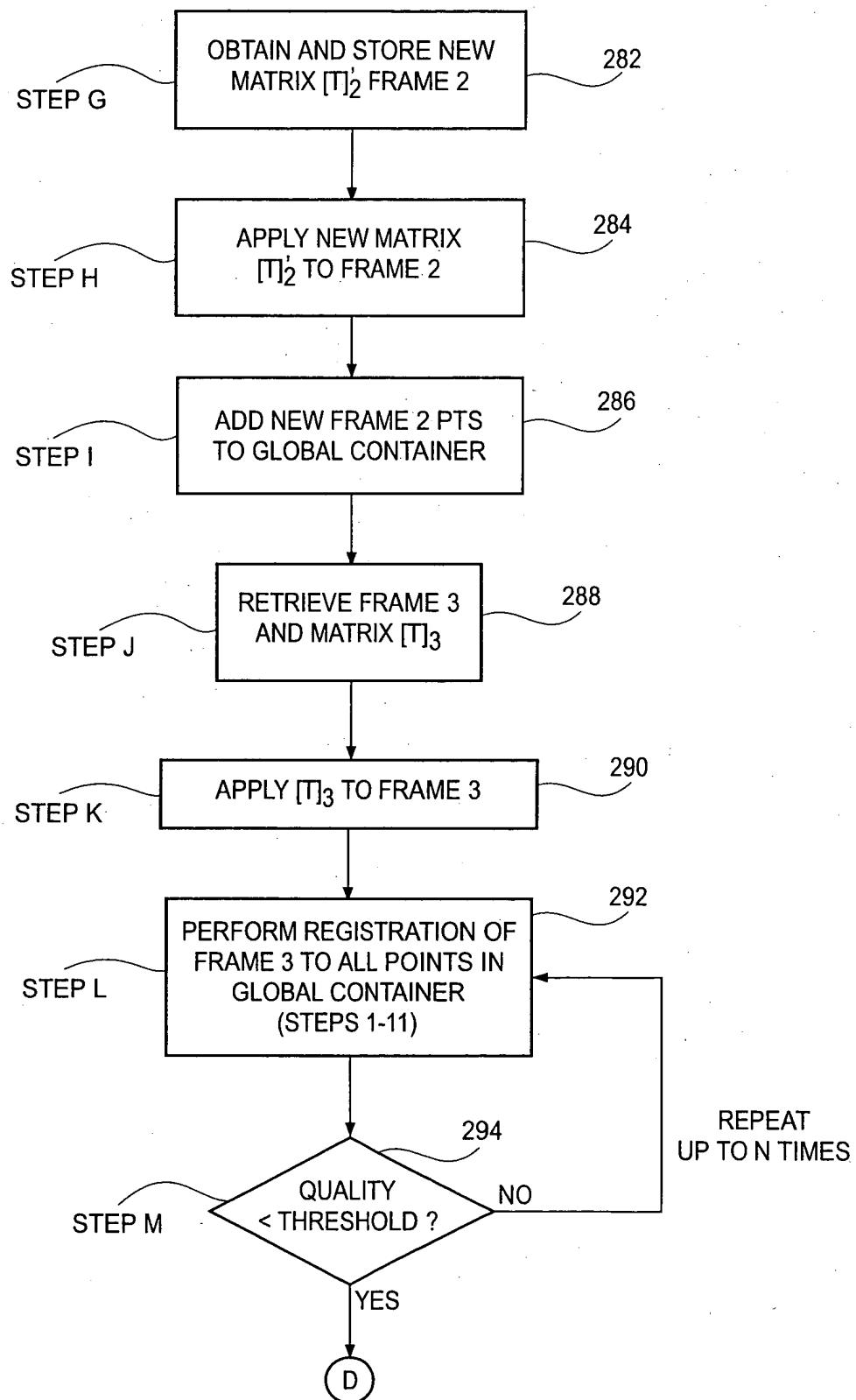
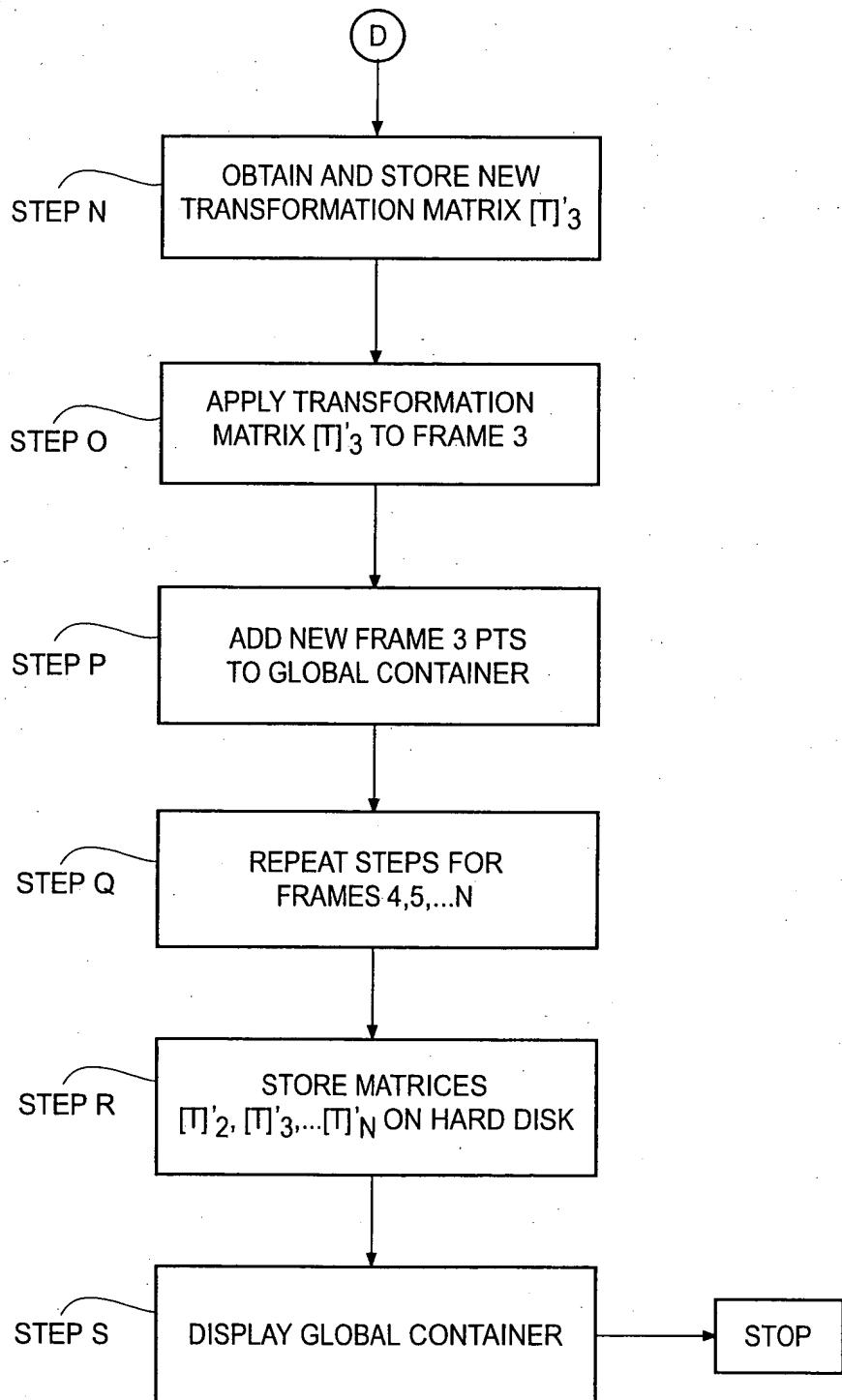
FIG. 48B

FIG. 48C



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FIG. 49

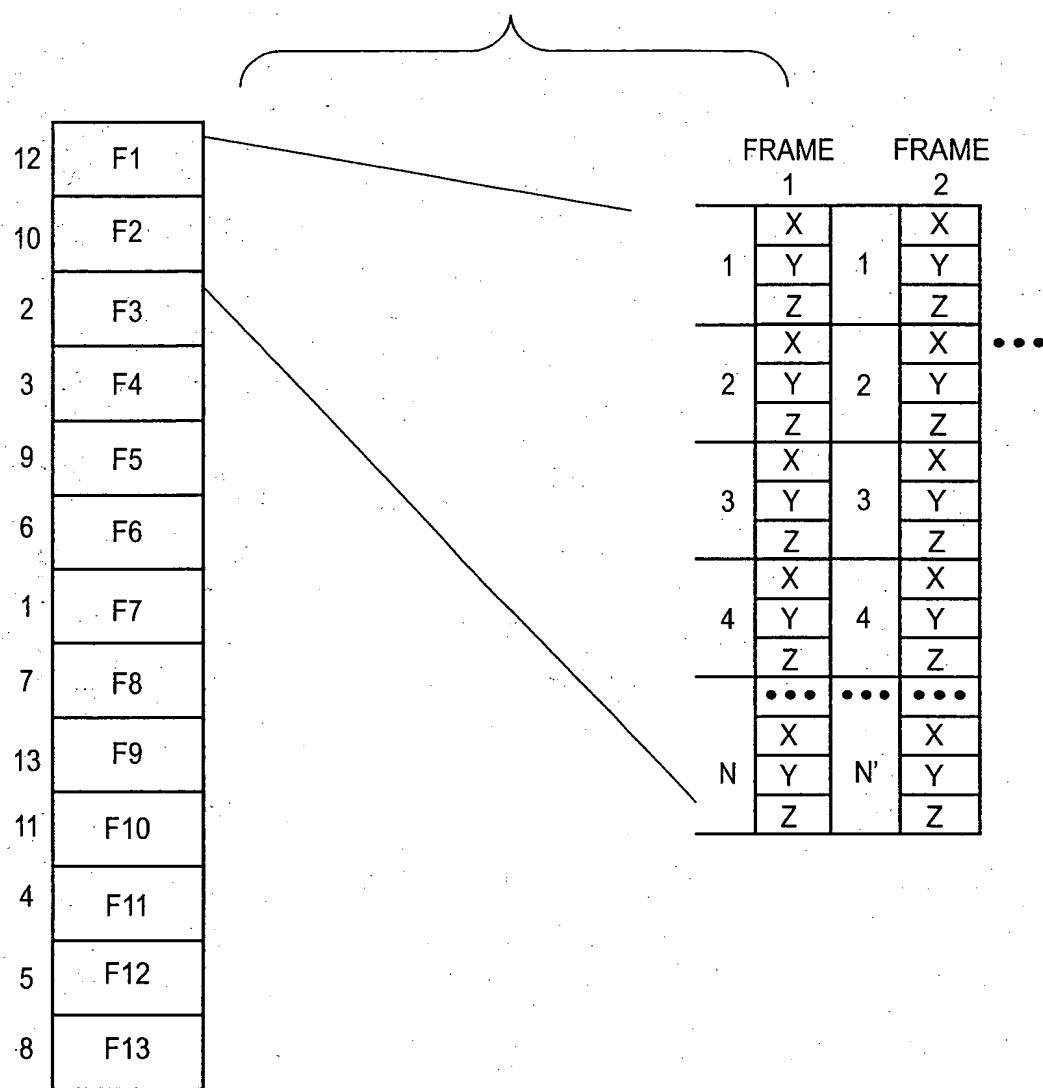


FIG. 50

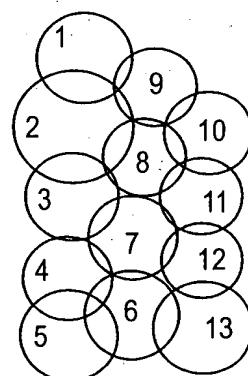


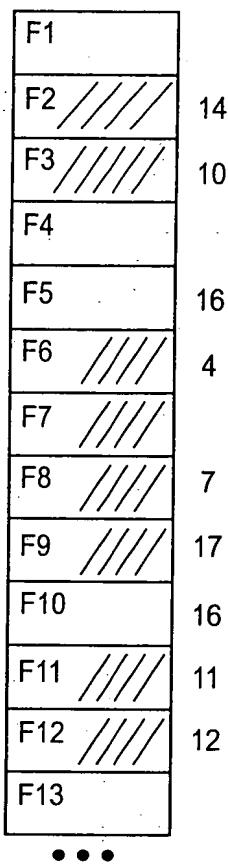
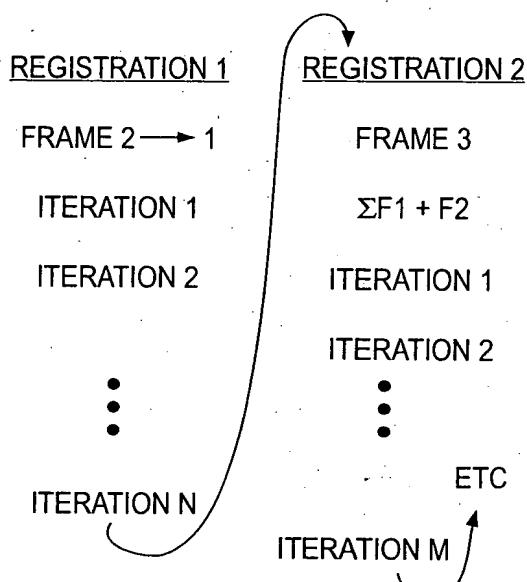
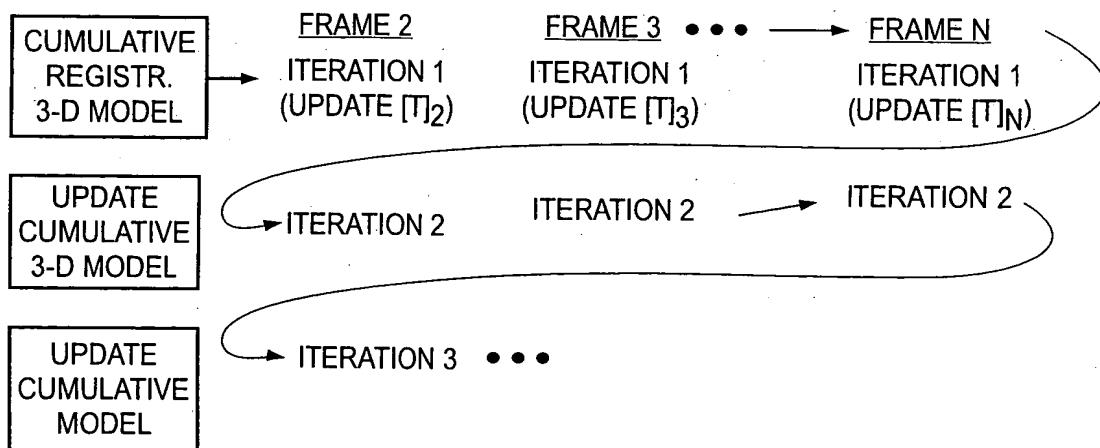
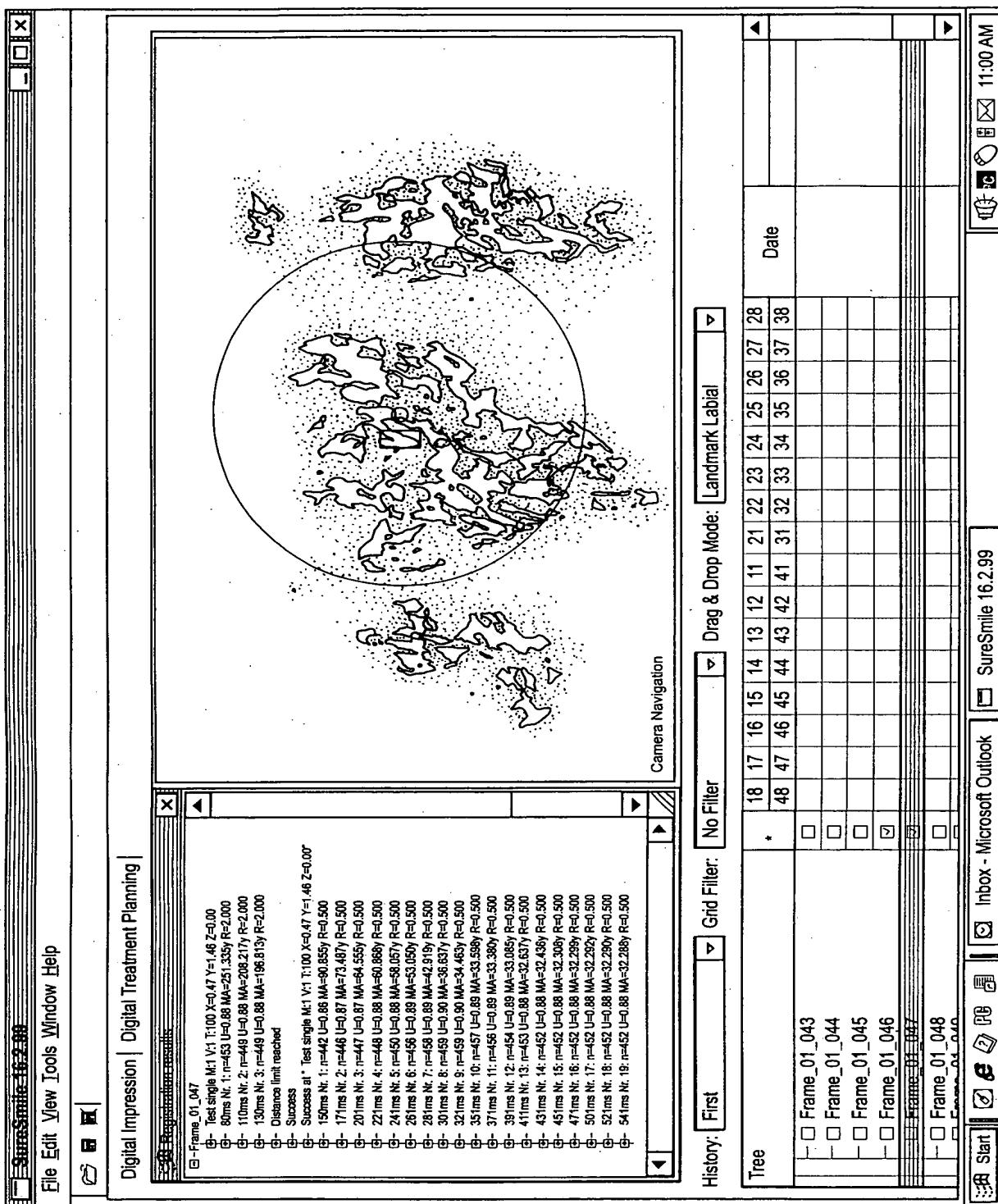
FIG. 51**FIG. 52****FIG. 53**

FIG. 54

<input checked="" type="radio"/> Single	<input type="radio"/> Cumulative																									
X	Y	Z																								
3.00 -3.00 0.00 0.00	0.00 3.00 0.00 -3.00	0.00 0.00 0.00 0.00																								
<table border="1"> <tr> <td>Registration (raw)</td> <td>Registration (raw + fine)</td> <td>Registration (line)</td> </tr> <tr> <td>Distance limit (SYX)</td> <td>Maximal iteration count</td> <td>Distance limit [50.000y]</td> </tr> <tr> <td>Stationary count</td> <td>Overlap size</td> <td>Final distance [40.000y]</td> </tr> <tr> <td>Radius (SYX)</td> <td>Minimum quote of active points (0..1)</td> <td>Stationary count</td> </tr> <tr> <td>Convergence factor</td> <td>Maximal triangle size (larger triangles are treated as gaps)</td> <td>Radius (SYX) [0.500mm]</td> </tr> <tr> <td>Number of points to register</td> <td>Maximal edge length (longer edges have no attraction)</td> <td>Convergence factor [0.010]</td> </tr> <tr> <td>Accelerate factor</td> <td>Maximal count of unsuccessful files new segment is started when exceeded)</td> <td>Number of points to register [400]</td> </tr> <tr> <td></td> <td>Form factor: Proportion of point distance and element size (>=0)</td> <td>Accelerate factor [1.3]</td> </tr> </table>			Registration (raw)	Registration (raw + fine)	Registration (line)	Distance limit (SYX)	Maximal iteration count	Distance limit [50.000y]	Stationary count	Overlap size	Final distance [40.000y]	Radius (SYX)	Minimum quote of active points (0..1)	Stationary count	Convergence factor	Maximal triangle size (larger triangles are treated as gaps)	Radius (SYX) [0.500mm]	Number of points to register	Maximal edge length (longer edges have no attraction)	Convergence factor [0.010]	Accelerate factor	Maximal count of unsuccessful files new segment is started when exceeded)	Number of points to register [400]		Form factor: Proportion of point distance and element size (>=0)	Accelerate factor [1.3]
Registration (raw)	Registration (raw + fine)	Registration (line)																								
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Stationary count	Overlap size	Final distance [40.000y]																								
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Accelerate factor	Maximal count of unsuccessful files new segment is started when exceeded)	Number of points to register [400]																								
	Form factor: Proportion of point distance and element size (>=0)	Accelerate factor [1.3]																								
general																										
<table border="1"> <tr> <td>Count of SYX surfaces for animation (0= off)</td> <td>Cell size [16]</td> <td><input checked="" type="checkbox"/> Combine frames cumulative</td> </tr> <tr> <td colspan="2"></td> <td><input checked="" type="checkbox"/> Combine segments cumulative</td> </tr> </table>			Count of SYX surfaces for animation (0= off)	Cell size [16]	<input checked="" type="checkbox"/> Combine frames cumulative			<input checked="" type="checkbox"/> Combine segments cumulative																		
Count of SYX surfaces for animation (0= off)	Cell size [16]	<input checked="" type="checkbox"/> Combine frames cumulative																								
		<input checked="" type="checkbox"/> Combine segments cumulative																								
Merging																										
<table border="1"> <tr> <td>Radius of sphere inside which is to replace</td> <td>Minimal triangle plane size for closing gaps [0.500mm]</td> <td>Minimal distance from point of base quantity [0.400mm]</td> </tr> <tr> <td>Maximal count of edge lines for closing gaps</td> <td>Maximal edge length for closing gaps [1.500mm]</td> <td>Maximal distance from edge of base quantity [0.000mm]</td> </tr> <tr> <td></td> <td>[0.00]</td> <td>[0.00]</td> </tr> </table>			Radius of sphere inside which is to replace	Minimal triangle plane size for closing gaps [0.500mm]	Minimal distance from point of base quantity [0.400mm]	Maximal count of edge lines for closing gaps	Maximal edge length for closing gaps [1.500mm]	Maximal distance from edge of base quantity [0.000mm]		[0.00]	[0.00]															
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	[0.00]	[0.00]																								

FIG. 55



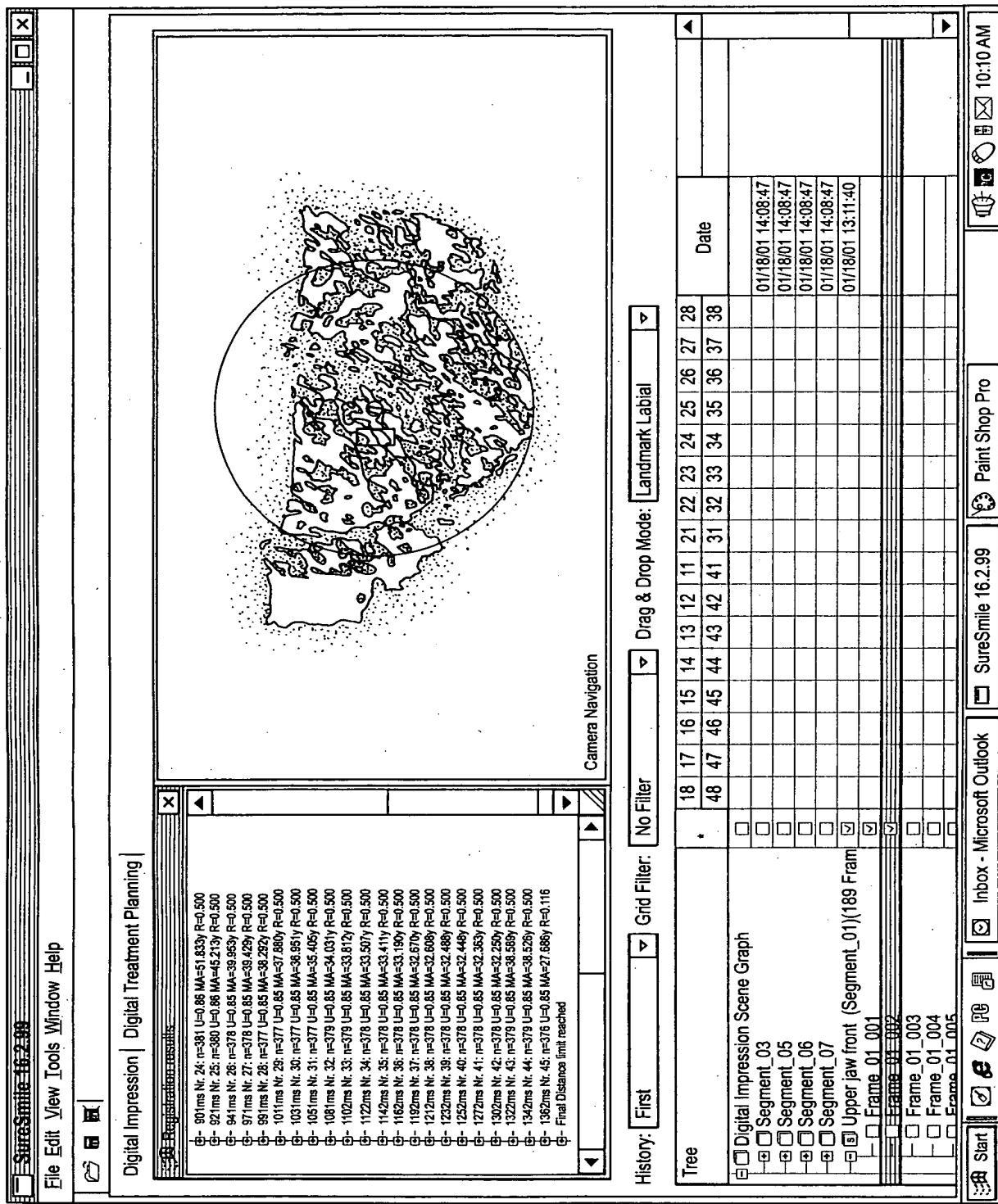
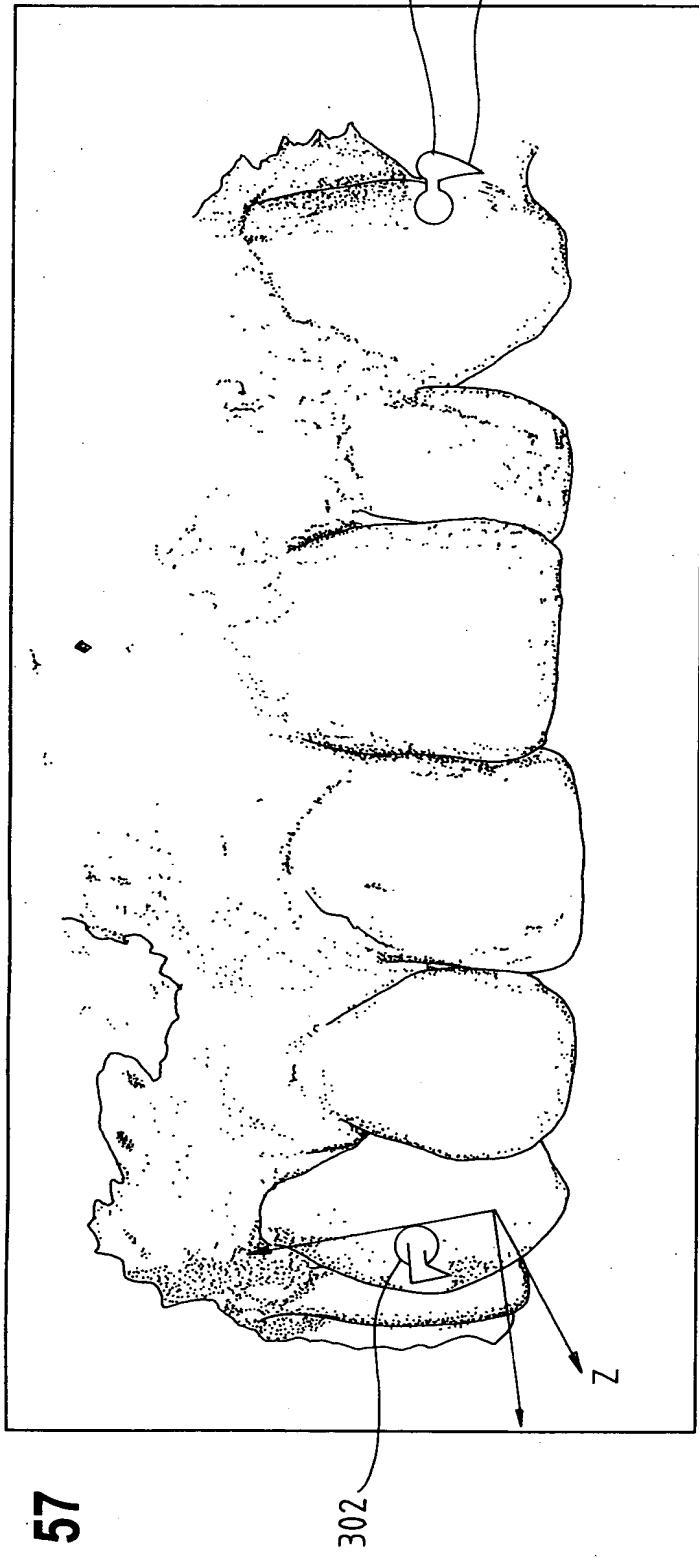


FIG. 56

FIG. 57



DRAG AND DROP MODE
LANDMARK LABEL ▶

18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28

301

UPPER JAW
FRONT (SEGMENT)

306

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Fig. 58A

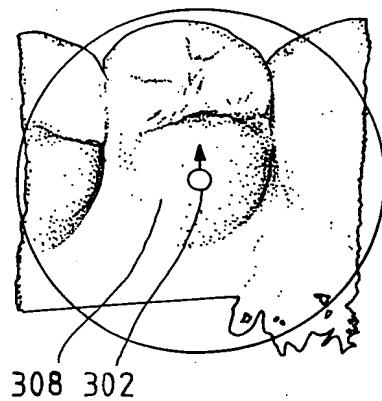


Fig. 58B

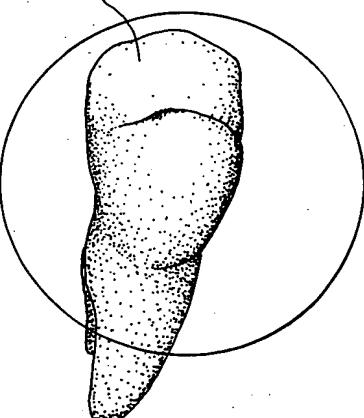


Fig. 58C

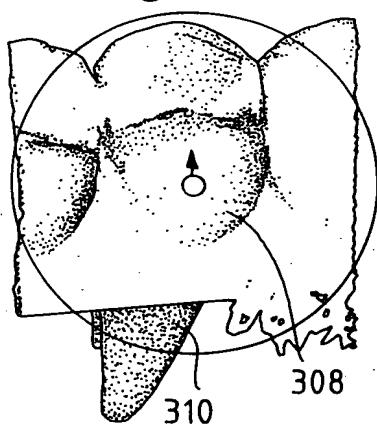


Fig. 58D

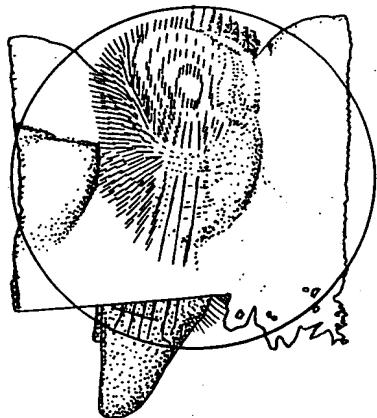


Fig. 58E

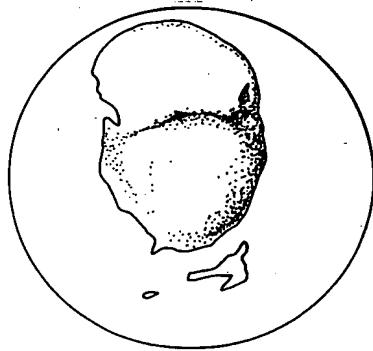
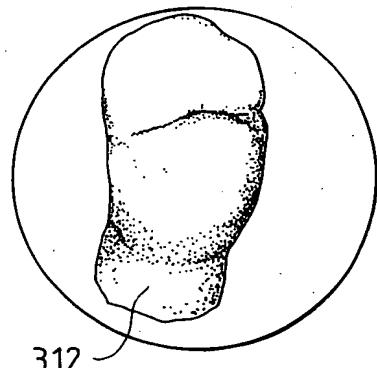
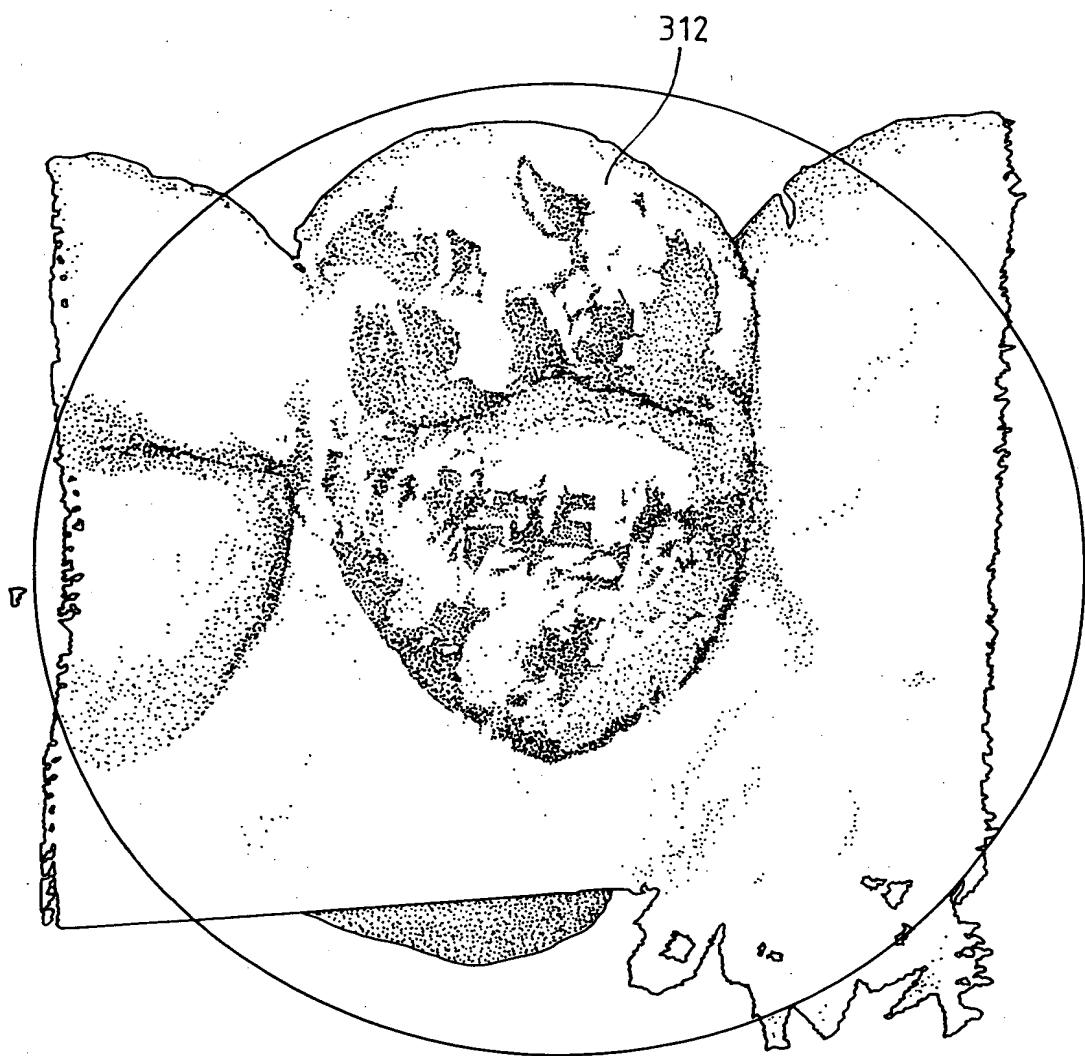


Fig. 58F



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Fig. 59



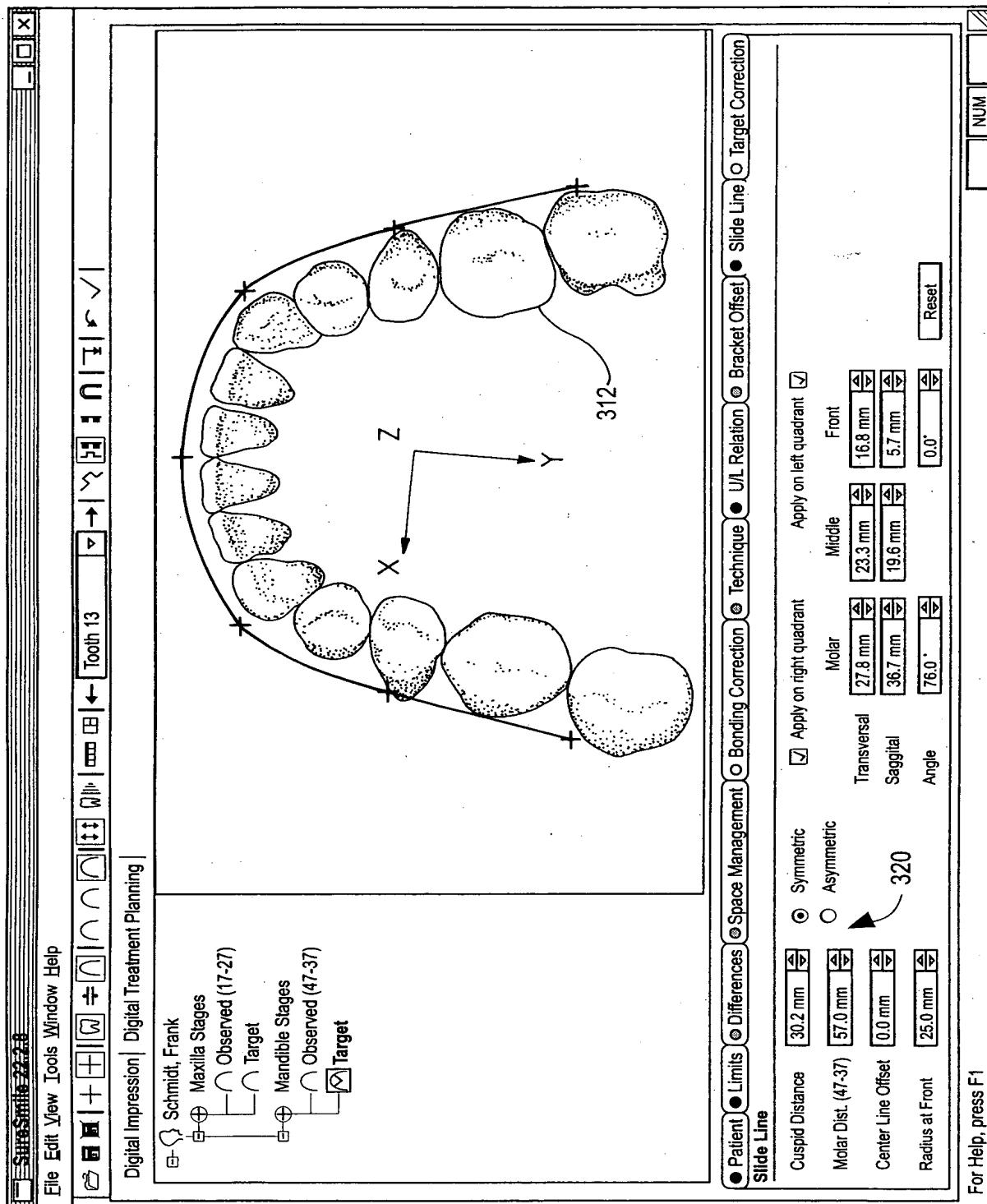


FIG. 60

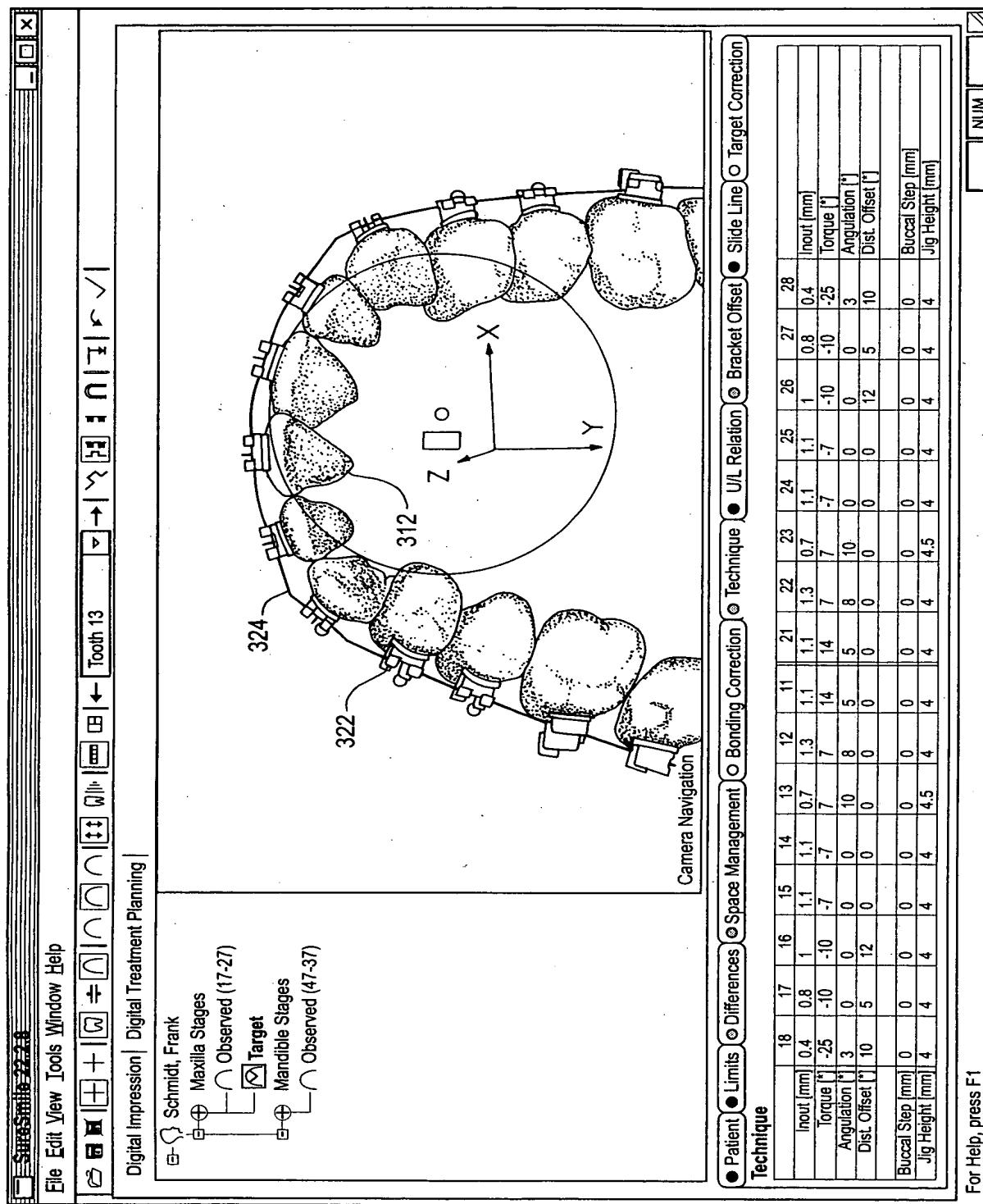
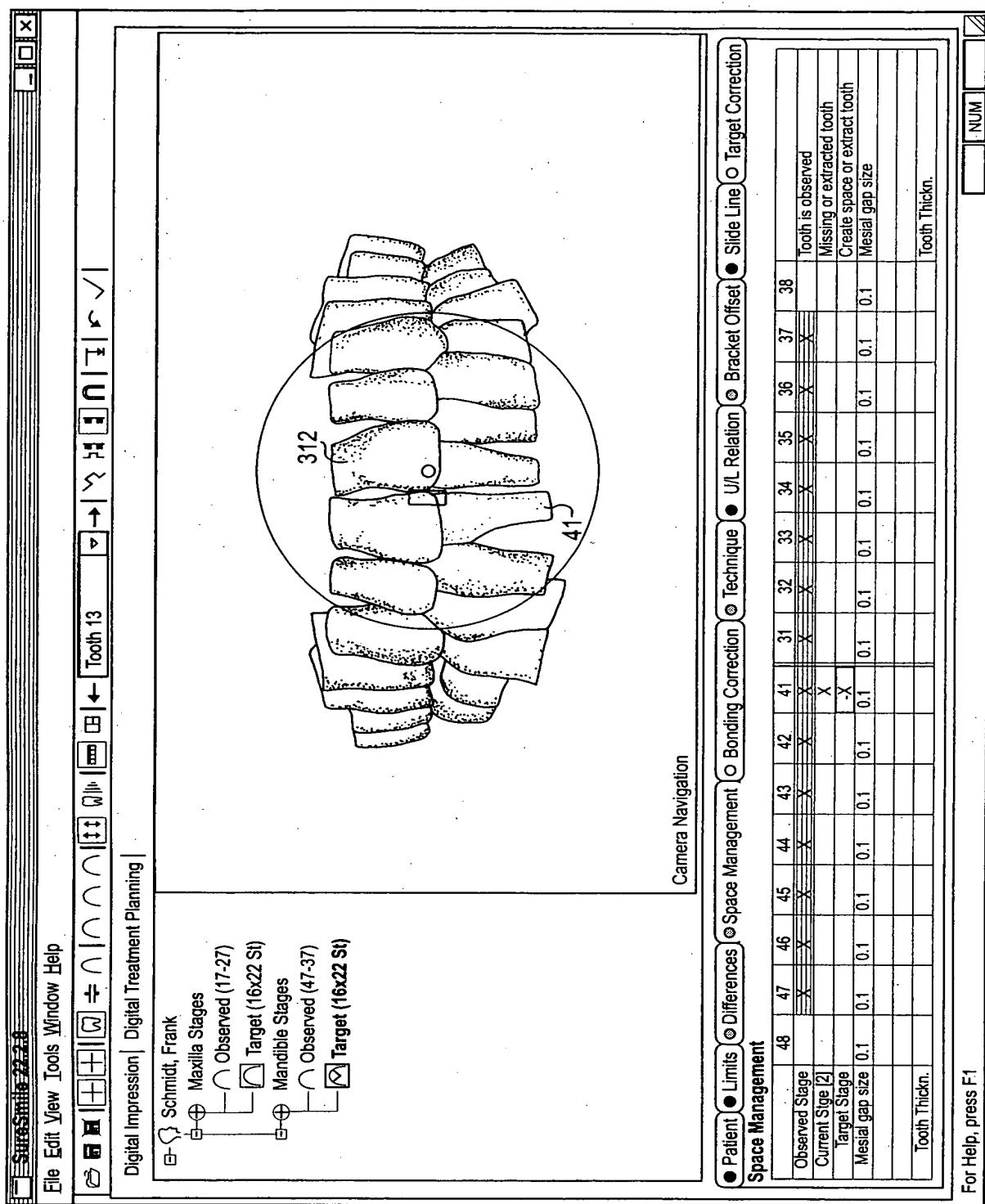


FIG. 61



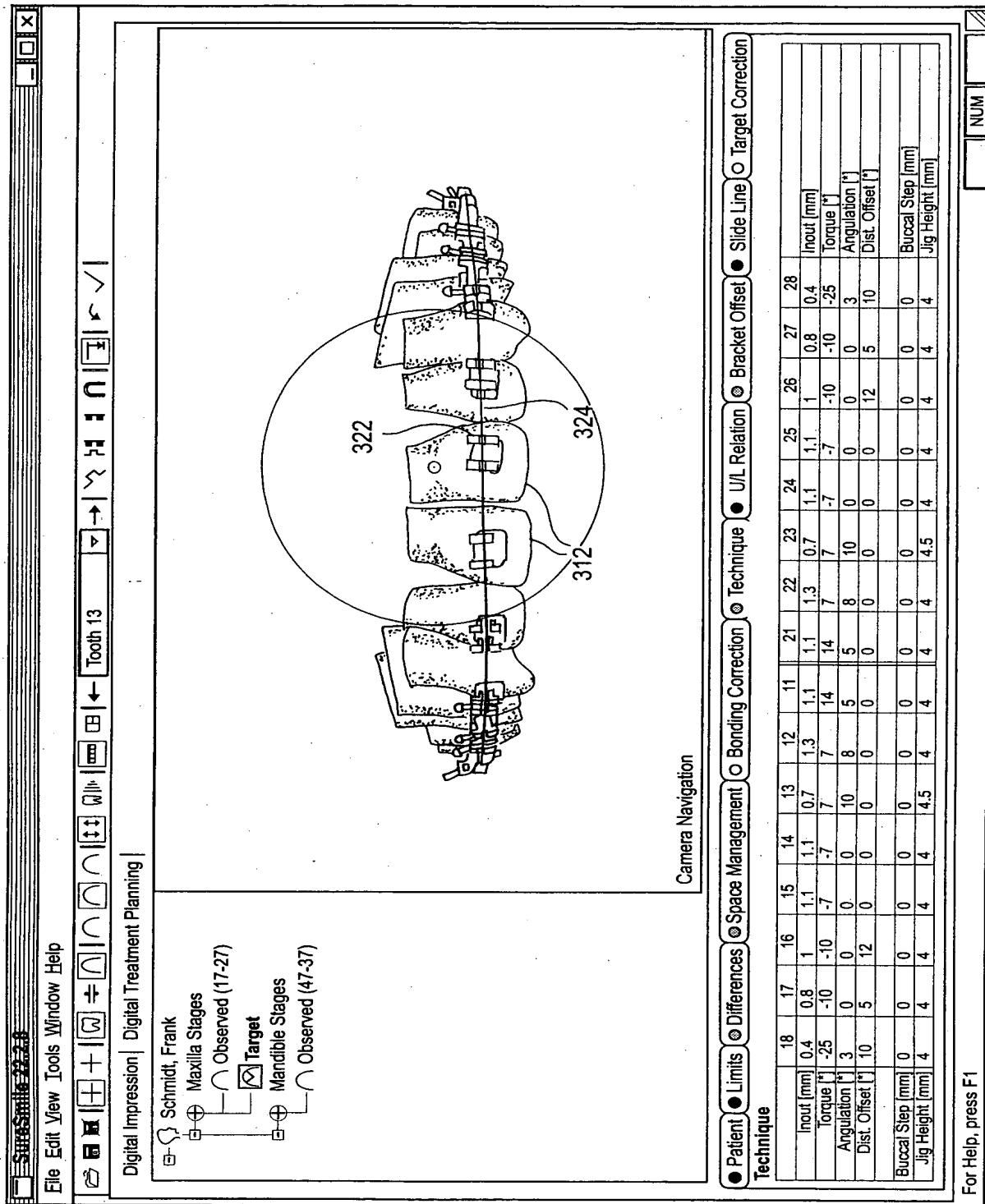


FIG. 63

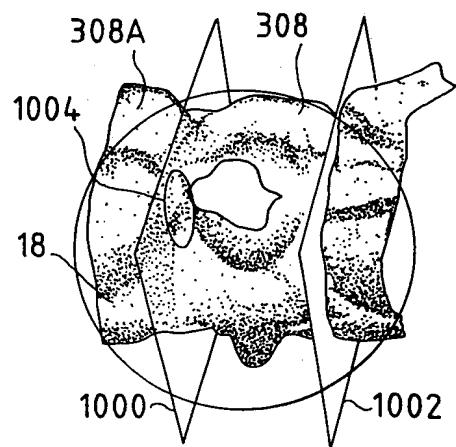
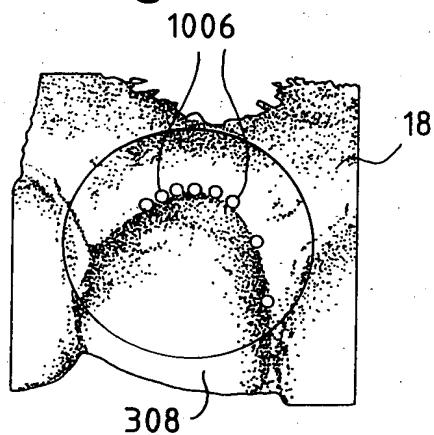
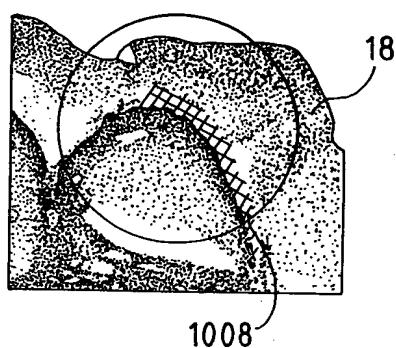
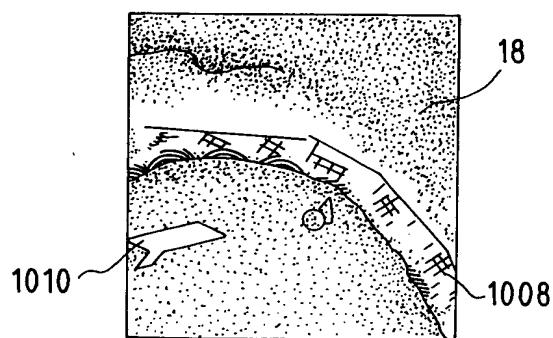
Fig. 64A**Fig. 64B****Fig. 64C****Fig. 64D**

FIG. 65